Thursday January 6 1983 Number 841 35p

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rogram theft t police unit

ERE has been another major ich of security at the Police ional Computer unit in Hen-, North London. Computer rams developed by the PNC were stolen. An investigation king place and no further de- are available.

ew trade show

EW exhibition for the compu- trade will be launched at the mbley Conference Centre from il 26-28. Sponsored by Com- r Weekly, Systems Interna- al and Practical Computing, show will meet the demand by puter manufacturers to meet d party dealers, distributors, ilers, and systems and software ses. Enquiries to the Exhibi- Manager, Computer Trade w, IPC Exhibitions, Surrey use, Throwley Way, Sutton, rey. Tel: 01-643 8040.

ercury deal

RCURY Communications has led with British Telecom the ns for its international links ch were agreed in principle a ago. Mercury described the otiations as "extremely tough" said that the result was "what expected".

BE for Benjamin

P director and chairman of the 2 campaign Alan Benjamin re- ed an OBE in the Queen's s year honours list. "I'm very sed," he said. "I was sounded about it in November. I don't w what it was awarded for, cause they don't give any cific reasons."

isonrouge

p boss

QUES Maisonrouge, chair- of the IBM world trade cor- ation and IBM senior vice- ident, has been named Inter- onal Business Leader of the r by the Academy of Interna- nal Business, which has mem- s in more than 30 countries.

Govt puts another £100m into IT

by John Riley

SIR KEITH JOSEPH has announced a £100 million boost for information technology education and new blood for the UK's universities and polytechnics.

And it has creamed off £13 million of the first £18 million to be ear-marked in the three-year programme to boost research and put fresh faces into higher education.

Brian Oakley, secretary of the Science and Engineering Research Council, which will act as paymaster for the bulk of the cash, said, "Perhaps we can reverse the brain drain. The two main areas of emphasis will be intelligent knowledge-based systems and software engineering."

In the first year the cash will finance 70 extra staff posts in universities and "a comparable increase in polytechnic and colleges," as well as 45 extra SERC fellowships. There will be an additional 600 post-graduates and post-experience students in universities and 400 in polytechnics, and some 1,100 extra places will be available for first degree and diploma students. Non-advanced education will get £2 million of support for information technology.

All this is capped by £5 million additional research grants for the SERC.

In the following two years Joseph said the programmes should grow in increasing proportions to bring the three-year allocation up to £100 million.

The exact relationship between the Science Vote, which was increased to support information technology, and the £13 million package for 1983/84, will be clarified soon. The £13 million is made up of £5 million additional research grants for the SERC, £4 million from the Science Vote, and £4 million announced last November to support information technology in advanced and non-advanced further education.

Last October, Joseph's top science advisers, the Advisory Board for Research Councils, recommended that £30 million be spent on research into information technology over the next three years as part of a £50 million five-year programme.

FAIRBAIRN . . . "They will see that it offers considerable benefits over more traditional database approaches."

DHSS guinea pig for expert systems

by Robert Parry

THE £700 million, 20-year plan to computerise the UK social security systems is set to become a test bed for development of expert systems.

If the approach is adopted and backed financially by the government, the project would provide an enormous fillip for the UK's efforts in artificial intelligence.

A meeting last month to discuss the social security strategy, first outlined in September, heard that expert systems might be the ideal, and perhaps the only way of automating the Department of Health and Social Security's biggest bottleneck — the assessment of the amounts claimants should receive.

Because expert systems are still relatively untried, the DHSS will be looking for high-level approval, perhaps from the Prime Minister's office, for any forays it makes into expert systems.

DHSS Under-Secretary John Ray said that expert systems are only one line of attack out of the many approaches emerging from consultation on the social security strategy document. It will be explored, he says, but will have to take its place alongside others which may be better established and perhaps less risky.

But one of those who pushed the expert systems approach at the recent strategy meeting, National Computing Centre director David Fairbairn reckons that despite caution from traditionalist computer people the DHSS will adopt an expert systems approach.

"They will do a pilot study, to demonstrate feasibility before making a commitment, and will see that it offers considerable benefits over more traditional database approaches," he says.

Charles Read, director of Interbank Research Organisation and chairman of Mrs Thatcher's Information Technology Advisory Panel, is also understood to have backed the expert systems approach.

"It is just about odds on that they will end up with some sort of expert system," Fairbairn said.

The common view of expert systems is that they are as yet untried, and involve probability decisions. In the DHSS application there would be no question of probability — claimants are eligible or they are not.

IBM gets 12% stake in Intel

by Robert Parry

IBM has taken a $250 million stake in Intel. It is to buy 6.25 million new shares at $40, giving it a 12% holding in the US semiconductor manufacturer.

Intel will then have 53 million common shares outstanding.

Under the agreement, IBM will limit any further buying of Intel shares to 30% of the total outstanding at most. So far there is no indication of when, or by how much, IBM is likely to increase its holding.

The agreement has no time limit, says an Intel spokesman, but there is provision for re-negotiation after eight years.

IBM will have a seat on Intel's board, but the director will be excused from deliberations in which there might be a potential conflict of interest, as seen by Intel or by the director. John Opel, IBM president and chief executive, adds that the company will not participate in the day-to-day operations at Intel.

The investment strengthens a major and important supplier to IBM, Opel says. The two companies have grown closer over recent years. IBM adopted Intel's 8088 microprocessor for its Personal Computer — and gave the 16-bit family a welcome boost through the trend it set in the microcomputer market — and in September fixed a deal giving it access to Intel's HMOS III technology and its 64K dynamic RAM chips.

IBM's move gives Intel a nice healthy injection of capital at a time when, like other US manufacturers, it has been hit hard by the recession and the onslaught of Japanese semiconductor companies.

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Taxmen's union in PAYE row

by John Riley

THE taxmen are threatening to block the introducion of PAYE computerisation this spring. They have mandated their union to take the step if the Inland Revenue Board does not agree to begin "realistic negotiations" on new technology by March 31.

The union, the Inland Revenue Staff Federation, decided, after an agreement for the whole of the Civil Service collapsed last summer, that a separate agreement on new technology should be negotiated within the Inland Revenue.

An initial "first thoughts" proposal to the IRSF was rejected recently because there were no firm guarantees on redundancies.

The rejection prompted a special conference of the IRSF to set out its position on new technology. The conference accepted that new technology will mean job losses, but was determined that these will not mean people losses.

That is why it decided that any agreement should "ensure that there is maximum redeployment of displaced staff, no compulsory redundancy, and an equitable share of its benefits with staff."

In proposing the motion Tony Christopher, general secretary of IRSF, expressed concern about the level of debate on the new technology by unions and the Labour Party. "The new technology debate is absurd," he said. "We are being let down by the Labour Party and the trade union leaders. There is apathy and superabundant confidence that everything is all right. This is frightening because the major battle is to be held on the political front."

The conference also reaffirmed its position on other points. These included the importance of consultancy about the introduction of new technology, regular appraisal of health, safety and welfare, preservation of confidentiality of records, and assurance of a satisfactory working environment.

One motion that was carried was designed to protect the taxpayer. The conference decided to ensure that the "advent of the new technology rivitalises rather than dehumanises the services offered to the public by the Inland Revenue."

CHRISTOPHER . . . *"The new technology debate is absurd."*

Cii HB needs three billion francs to break even

by Jack Gee

CHAIRMAN of Cii Honeywell Bull Jacques Stern, warned in Paris that a promise of as much as two billion francs (£180 million) in public aid in 1983 will fail to cover the State-controlled company's needs which he sets at three billion francs (£270 million).

Stern said there was no hope of restoring Cii Honeywell Bull to profit before 1986.

Addressing an emergency Press conference, the chairman said: "We shall have to reduce our debt load of six billion francs. Servicing costs represent 10% of turnover and must be brought down to 6%, otherwise we shall face bankruptcy within two years."

Stern refused to comment on the firm's 1982 results which are expected to reflect a loss of at least one billion francs and might be as high as 1.3 billion francs.

Managing director Francis Lorentz said Cii Honeywell Bull is being crippled by its debt burden combined with the need for massive investment in research and development.

Stern complained that the State had provided only 70 million francs out of the 850 million francs which Cii Honeywell Bull has spent on research over the past year.

He pointed out that Cii Honeywell Bull did not receive any profitable military orders from the State or the Telecommunications Authority.

Stern announced a reorganisation plan for Cii Honeywell Bull which will go into operation immediately. State-owned Machines Bull, which is the firm's holding company, will be the hub of four key spheres of activity covering data processing systems, peripherals, minicomputers and office automation.

The objective of this new structure is to decentralise activities, encourage initiative and flexibility and help the company adapt to new markets, the chairman said.

The government faces a painful choice. One alternative is to follow ICL's example and embark on massive closures of factories accompanied by dismissals of staff, the abandonment of many product lines, incorporation of foreign products into catalogues and the surrender of much of the market to IBM, other American manufacturers, and the Japanese.

The other alternative is to give Cii Honeywell Bull the means to attempt a last ditch rescue operation for the French computer industry by investing in new products and widening the scope of its activities.

But this costs money on a scale which the government cannot afford.

So the likelihood is that the French authorities will establish a compromise by providing just enough funds to keep Cii Honeywell Bull's head above water with a trickle of investment which will be inadequate to restore the firm to a healthy level of activity.

One area in the Gulf computers can't alter.

Middle East set for electronic mail

by Sarah Hardcastle

ELECTRONIC mail, teleconferencing and remote database access are among new data communications services likely to become available in the Middle East following the launch, scheduled for 1984, of Arabsat, the region's satellite system.

Meanwhile, in the sphere of small systems, a huge market is emerging in the Arab world for bilingual products which can handle Arabic and English simultaneously.

These were the predominating themes of the Second Gulf Computer Conference and Exhibition held in Dubai from December 13 to 16 and sponsored by Middle East Computing, Computer Weekly's sister publication.

Designed primarily to meet the telephone, TV and radio programme requirements of the 22 countries of the Arab League up to 1990, Arabsat will have "full capability" for providing data transmission facilities for an extensive range of services, said Dr Ali Al-Mashat, director-general of the Arab Satellite Communications Organisation, addressing a conference telecommunications session.

The system will comprise two geosynchronous satellites, a number of communications earth stations in the Arab countries and a satellite control network at Arabsat's headquarters in Riyadh, Saudi Arabia.

Arab League members are now tendering for earth stations, "95% of which will be ready to receive and transmit signals when Arabsat is launched" said Dr Al-Mashat.

Services such as electronic mail and messaging, database access, financial transactions and travel reservations would be provided through local telecommunications authorities, said Dr Al-Mashat.

Many of the 120 companies at the exhibition showed newly-developed Arabic/English word processors, terminals and microcomputers – a fast-developing market area, estimated at £20 million a year for word processing systems alone.

Awards to Plessey designers

by Robert Parry

FIVE Plessey design teams shared a £5,000 Christmas present last month when they won the company's annual design competition. The teams came from various Plessey divisions, and were the best of a record 39 entries.

The scheme rewards staff who have developed, or are developing, microelectronic products with significant economic or technical advantages. It aims to encourage products from Plessey subsidiaries which show design innovation, manufacturing benefits, ease of use, reliability and commercial impact.

This year's winner in the main category – products in production which have been around long enough for reliable user reports to be gathered – was a team from Plessey Semiconductors which won £2,000 with a range of very high speed ICs for television applications. Runners-up were Plessey Microsystems with the System 19/6 multi-user microcomputer system and Plessey Research (Caswell) with a fast digital-to-analogue converter chip.

Another team from Caswell won the second award category, products in development. A single-chip 256 channel digital switch for main telephone exchanges and PABXs gained them £1,000.

The £500 second prize went to Plessey Office Systems for the IBIS dataplug, a desk-mounted device for connecting a telephone and proprietary data terminal to an existing telephone line extension of a Plessey PDX digital switch.

Company chairman Sir John Clark described the 1982 competition as the best so far.

Burroughs unveils its largest mainframe

by Kavan Pearson

BURROUGHS has taken the wraps off its challenger in largest mainframe stakes. The B7900, launched in the UK today (Thursday), competes with IBM's 308X series and similar machines from Honeywell and Univac. It replaces the B7800.

Three versions are available in either single or multiple processor configurations, with up to 96 Mbytes of main memory, 16 times the maximum capacity of the B7800.

The company has also unveiled two large capacity disc drives to go with the new processors. The B9484-12 is a removeable disc unit of 252 Mbytes capacity. The B9494-5 is a fixed 542 Mbyte disc drive. They are the first fruits of Burroughs' takeover of Memorex in 1981.

The new computers are reported to use a "distributed system architecture" with multiple specialised processor units, each with a different capacity and specialisation to provide a balanced capability for a variable workload.

Burroughs is also offering a Partitioning Availability and Capacity (PAC) kit to improve resource usage in the system. The kit includes an auxiliary processor and a memory control unit.

Shipments of the new systems are scheduled for third quarter of 1983, and prices are expected to range from £1 million to £2 million. Deliveries of the disc are due in the second quarter of 1983.

Burroughs says that the B7900 systems software is compatible with previous generation systems.

CDC returns to IBM disc market in Europe

by Kevan Pearson

CONTROL Data is set to bounce back into the IBM disc market with a major distribution deal covering the whole of Europe.

The company is seeking an exclusive arrangement with a major UK leasing outfit to distribute its 33750 and 33800 IBM compatible disc drives in what will be the first distribution deal of its kind by a US mainframe company.

CDC is stealing a leaf out of the mini and micro manufacturers' books to attack the European market.

The as yet unnamed leasing company will sell only CDC discs, which could cause problems for the other plug compatible disc manufacturers, chiefly Storage Technology and Memorex.

The agreement will mark CDC's return to the IBM market. It has been noticeably absent for a number of years, though it is still the largest OEM supplier of discs to other manufacturers, such as ICL.

The company's two disc products, compatible with IBM's 3370 and 3380 products, use exactly the same hardware components. The major difference between the CDC 33750 and the 33800 is in the format of the data and the interface protocols. The actual discs, cabinets and head/disc assemblies are the same in the two models, making it possible to upgrade from one product to the other at a much lower cost than with any competitive products, the company claims.

■ CDC revamps as it hits £100 million – Page 5.

State-controlled firms ask French govt for £4.5 billion

by Jack Gee

FRANCE'S 11 major state-controlled firms have presented the government with a request for public funds totalling £4.5 billion over the next three years. Much of this is required to develop the computer and electronics industry.

Jean-Pierre Chevenement, Minister for Industry and Research, will give his decision in February after studying action plans which each company has submitted with an outline of its requirements.

But he seems likely to be able to meet only half the stated needs. Cii Honeywell Bull, in which the state holds an 80% stake, appears in the list with Thomson-Brandt and Compagnie Generale d'Electricite. The Matra Group, which is 51% under public ownership, is absent.

France's State-owned firms lost £8.4 billion in 1981 and losses for 1982 are expected to be equally gloomy. The companies will need £1.8 billion in cash and a further £2.3 billion for investment during 1983.

However, the 1983 budget provides for £1.2 billion, only half the amount which the State-controlled corporations say they need to invest.

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UK misses out on IT standards

by Donald Kennett

THE UK is in danger of missing yet another opportunity to influence world standards in information technology.

An unofficial working group of the US IEEE 802 committee on local area networks has been considering standards for data communication on cable television networks for over a year, but has had no UK proposals. Four proposals for access methods, including one from the French PTT, are being considered.

This is despite the propaganda from the Department of Indistry about the importance for future exports of pushing UK ideas in International standards bodies, and despite Information Technology Minister Kenneth Baker's promotion of the switched star configuration as the basis for the systems of the future.

Leader Comment – Page 11

British Telecom, a major advocate of the switched star system, has sent a representative to the last two meetings of the 802 Metropolitan Area Network working group. But the representative, David Millington, said his role was to bring back information that would help BT compete more effectively in the UK, rather than to put UK ideas into the meeting.

"How much of the equipment for this will be developed in the UK is an open question at the moment," he added.

Another UK advocate of star systems is the UEI group, the company that wants to take cable television into homes through the sewers. But this company is basing its system on a US design, from Times Fiber Communications, which installed eight switched star cable television networks last year.

The government set up the Focus Committee to identify areas of information technology that would benefit from accelerated standards development. The arrangement also was designed to facilitate sponsorship of UK representotion on standards bodies such as the IEEE, one of whose future meetings the DoI has offered to host in London if delegates can persuade companies to pay for their attendance.

But the Focus Committee has set its priorities in three areas – local area networks, open systems interconnection and videotex (viewdata and teletext). Cable system technical issues are being left to the Eden committee set up by the DoI to produce by March some draft interim standards for the British Standards Insitution to take up.

But even then, Eden is expected to make no more than a mention of the interactive aspects of cable services. It is expected to leave untouched areas that are the concern of the CCITT and CCIR international standards bodies for telecommunications and broadcasting.

VAN KINSBERGEN . . . *"Important to future of whole industry."*

'Landmark' piracy lawsuit to go ahead in US

BOOLE and Babbage, the US performance software house, has confirmed its intention to press a patent lawsuit against Candle Corp.

B&B chief executive Jack van Kinsbergen said in London that the case would prove a landmark. "We are convinced our patent is valid, but even if it were not it is important to the future of the whole industry to set a precedent. In the current climate of worry about piracy it would be a big step backwards if we were unsuccessful."

The patent concerns a data extraction technique which he claimed was a patentable invention, unlike most software which was merely a set of mathematical procedures.

Candle in Los Angeles says that it is seeking a declaratory judgment to show that the patent is not valid. "We claim that their method of measuring the performance of a computer was not a new or useful process or product and therefore not an invention," said a spokesman.

Candle says that all the information embedded in the patent had been known at least a year before the patent was granted in 1970.

The spokesman added they had been trading for five years and this was the first they had heard of any infringement charge.

Van Kinsbergen was in this country to promote the launch of a range of new products for the operating systems and sub-systems market. He estimated the potential worldwide market in the next three years at about $3 million for this type of product. Main clients were expected to be big manufacturing corporations, banks and insurance companies with large IBM mainframe configurations.

The new software is to be sold in Europe by B&B's subsidiary, the European Software Company. B&B/ESC is banking on the continued dominance of IBM in the mainframe/personal computer field to provide it with clients.

'Users will be slow to adopt MVS/XA'

by Kevan Pearson

UK users of IBM kit are reticent about moving up to IBM's flagship operating system, Extended Architecture, according to a recent survey by the Xephon consultancy.

Out of a total of 120 questionnaires sent out, only one site revealed that it had any detailed plans to convert to MVS/XA in the immediate future. And none of the respondents who said they would convert to MVS/XA at some point in the future would do so at first release in January 1983.

Of the total survey response, about 36% said they had not planned for the changeover yet.

The results show a deep conservatism by users in the face of the greatest operating system change from IBM since the switch to virtual storage in the early 1970s. Although IBM would not have expected many users to convert in the early days, the results of the Xephon survey may cause some surprise.

The survey identifies four major benefits of a move to Extended Architecture, though surprisingly the "much vaunted 31-bit virtual addressing" is seen as less important than some of the other benefits.

31-bit addressing was rated lowest, and increased throughput the highest of the four major benefits cited: ability to run large programs (31-bit addressing); ability to support large TP systems; increased peripheral connectability; and increased throughput.

Users mention increased virtual and real storage limits, potential abilities for data management and database handling, and increased disc storage performance as the other benefits of MVS/XA.

Some of the survey's respondents feel that all MVS users will be forced to migrate because IBM will progressively withdraw support on the older product, and will not offer new releases of other software products to run under the old system. But this is not expected to happen for five or more years.

By that time IBM is expected to replace the 308X series and will possibly have started deliveries of the replacement machines. It is unlikely to support MVS/370 on the new hardware.

Details: Xephon Tel: (0628) 74922.

BT funds university courses

by John Riley

BRITISH TELECOM is giving Aston and York Universities £500,000 over five years to develop new courses in electronic systems engineering. It will give an additional £48,000 each year as bursaries to the annual intake of 60 students to the courses.

The universities will get £100,000 each year which will be divided between equipment and staff support. Each university will benefit equally except that Aston will get funding for a professor in its Department of Electrical and Electronic Engineering, while York will get a lecturer.

A spokesman for BT said that the reason for funding the courses was that engineers with the right mix of computing and telecommunication skills had not been coming out of the universities. It is possible, according to BT, that other sponsors will follow suit.

Users can make BT competitive

USERS hold the key to the government's attempts to make the communications industry competitive.

And unless users who now are enjoying the reduction in British Telecom long line prices give Mercury a chance to bid, the emerging alternative network could fail.

This message was given by Sir William Barlow, chairman of Thorn EMI and ex-chairman of the Post Office. Barlow, the man responsible for separating the Post Office and British Telecom, was speaking at the Computing Services Association pre-Christmas quarterly lunch.

"If you really want BT to be subjected to competition, you must give some business to the competition," Barlow said. "I have noticed recently a trend to be thankful that BT has competition and therefore offers better prices and better deliveries without being willing to invite Mercury in."

Mercury, the project owned 40% by Cable and Wireless, with Barclays Merchant Bank and British Petroleum the other partners, is offering an independent telecommunications network to begin operations later this year.

Barlow also said that he thought BT had nothing to fear from the liberalisation measure of granting licences for Value Added Networks. But he told the CSA members that he did not believe they understood the potential they had to provide services now that the VAN guidelines have been published by the Department of Industry.

He urged companies to take advantage of VANs because "after all the pressure, it would be rather an anti-climax if nothing now happened".

The government should not shy away from regulation of the telecommunications industry, he said, in spite of the bad example of the US Federal Communications Commission which is a "bureaucratic monster". Regulation is necessary because "there will still be a strong element of monopoly either in BT or its competitors".

Barlow is in favour of selling BT to the private sector, and he thinks it particularly important that telecommunications should be removed from Treasury control.

WOOD . . . "Computing is one field where girls do as well as men."

Girl technician of the year

by George Black

JAYNE WOOD, a 24-year-old software specialist from Maidstone, Kent, is runner-up in the girl technician engineer of the year competition. She received a £100 prize from the Duke of Kent at an award ceremony in London.

Jayne works at the airborne display division of Marconi Avionics, where she is in charge of 13 people, mostly male graduates. "That doesn't really cause any problems," she said. "I've never come across any discrimination and I think computing is one field where girls can do as well as men." First and third prizes went to a control technologist and a lighting engineer.

Jayne joined Marconi as a trainee programmer straight from school. "I didn't know what a computer was then – or a bit," she said. But she gained an HNC in Computer Studies and later a certificate in advanced avionic computing. After four years she was a software team leader, with four analyst-programmers to direct.

This year she was promoted to senior software engineer. Her work involves her in travelling abroad to talk to clients as well as management duties in the office. "I haven't any special long-term ambitions," she said. "I only look towards the next step to see what that involves."

Projects she has helped to organise include the analysis of airborne application software, the organisation of in-house software training and the procurement of software support tools.

The competition is sponsored by the Caroline Haslett Memorial Trust and the Institute of Electrical and Electronics Incorporated Engineers.

Computer polices 999 callers

by George Black

MERSEY Police can now tell where an emergency caller is, even if the person phoning doesn't know. All the 999-dialler needs give is a nearby landmark and the computer can pinpoint him.

This is one of the new skills brought to Merseyside by a £2 million system installed by Software Sciences of Farnborough, claimed to be the most advanced urban policing system in the country.

The complex, based on two Burroughs 6900 mainframes, provides a complete incident-logging service. It could place Software Sciences in a strong position to win the Merseyside criminal records computer contract later this year, as well as a number of other costly installations coming up for competition.

The computer also keeps an index of all premises with intruder alarms, can spot incidents whenever an alarm goes off and respond instantly. There is also a file on officers' abilities that can quickly find the right person with knowledge of a particular language or with firearms training.

The software took 40 man-years to develop but has been carried out in two years since the contract was awarded. Software Sciences, a Thorn-EMI subsidiary, had to meet stringent requirements, both to program a module for the Police National Computer interface and to be able to handle a growing volume of calls. At present Merseyside Police handle some 3,000 to 4,000 calls a day but they insist that they must be able to cope with a "worst-case-situation" of 500 an hour by 1988.

"A great many of these calls don't mean serious trouble," said Chief Superintendent Gordon Fraser. "They involve things like cats stuck up trees.

"What we need to do next is to educate the public to think about whether it is a matter of urgency or not."

A sharp rise in public demand for police help around 1977 had warned them that computerisation was essential to avoid a breakdown in operations, he said.

The 4½ Mbyte mainframes are linked to over 100 peripherals.

FRASER . . . "Many calls involve cats stuck up trees."

National cellular radio licence goes to Racal

by Donald Kennett

RACAL has won the licence to operate a national cellular radio system for mobile telephones and data terminals.

It won on the strength of its business plan against four rival bids from consortia which included heavyweights such as Ferranti, Cable & Wireless, ITT Graphic Scanning, Telephone Rentals, Prudential Assurance and two established car telephone and radio-paging service operators, Air Call and London Car Telephone.

The service will start in 1985, when the Home Office makes the frequencies available, in competition with a similar service to be run by British Telecom and Securicor.

Industry Minister John Butcher said the services would make cheap hand-portable telephones available to anybody who needed them. They would have a major impact on increasing the efficiency of the UK's economic infrastructure and would create a firm home base for exporters, he added.

Racal's system will be run by Racal-Millicom, a new company in which Racal has an 80% stake, Millicom in the US 15% and Hambros Bank 5%.

The Department of Industry's decision on the licence was made without reference to the technology proposed, because the consultants evaluating the bids (SRI International) felt that the two major contenders (AMPS from the US and MATS-E from Europe) could both provide adequate service, of far greater importance was to get everyone together on deciding a standard for Europe.

Racal is reluctant to talk about data services because they are likely to be central to the competition with BT. But its partner Millicom has recognised their importance enough to develop a range of data equipment to go with its cellular system.

Digital transmission is used for addressing and for changing frequencies, so it is easy enough to adapt for carrying data. This is where AMPS gains one of its advantages, according to Ribchester, because it uses a faster signalling rate than MATS-E. Allowing for error detection and correction mechanisms, a throughput of 8 Kbits-per-second could be achieved, he said.

Butcher claimed that the UK would be the first country to implement a nationwide cellular system.

US slump in video game shares

by Philip Hunter

THE recent Wall Street slump in video games shares has pulled down many leading US computer companies with it. Texas Instruments lost 10% of its share value, while General Instruments, which supplies chips to the game makers, lost 20%.

Other leading companies like Honeywell, NCR and Motorola lost several percentage points.

Worst affected were the two leading US video games makers, which each had over one-third of their share value wiped out in a week.

Warner Communications, owner of Atari, began the stampede when its share value was slashed from $51.75 to $36 in one day last December. Two days later it was the turn of Mattel with a drop from $23.25 to $16.75.

Other game and cartridge makers, like Coleco, suffered less spectacular humiliations, and newcomer Imagic had to postpone its offer of public shares until next year.

The sudden crash was kindled by poor last-quarter profits forecast at Atari and Mattel.

SALES BRIEF

STC wins £3m US Army deal

STANDARD Telephones and Cables has won a £3 million share in developing the US Army's optical fibre technology. The existing coaxial cable transmission system is to be replaced by FOTS (LH) – fibre optic transmission system (long haul).

STC is linked with the main contractor, ITT Defence Communications Division in New Jersey.

City systems

CITY-based systems firm Consultants (Computer and Financial) has announced a clutch of contracts worth £770,000. The orders come from stockbroking and publishing firms. An unnamed broking firm will get a mini-based Fiscal system, which at £441,000 represents the biggest contract undertaken by CCF. Wootten Publications is to install a life assurance comparison system and a unit trust system.

Gas control

BRITISH Gas has replaced its 10-year-old Newcastle control centre system with an £80,000 computer from ATS Telemetry of Haywards Heath, Sussex. The system is based on two DEC 11/23 processors with 256K RAM each. Data collecting centres containing three Intel 8085 microprocessors cater for up to 32 outstations.

Atlantic crossing

ATLANTIC Container Line Services, partly owned by Cunard, has bought a Burroughs B3955 system for £350,000 to handle cargo documentation and container control. It will be linked to four computer centres in Europe and two in North America, acting as a central node in the international network.

Changing gear

EUROPE'S largest steering gear manufacturers, CAM Gears, has ordered an ICL 2955 and about 80 ICL DRS20 distributed systems valued at £200,000. A further order by the Hitchin-based company is anticipated to take the scope of the deal to £400,000. The 2955, replacing an ICL 2946, is to used for order processing, material requirements planning, shop floor and financial applications.

Hand-print

THE UK hand-print recognition terminal firm Quest Micropad has sold 65 Micropads to the US company Remington Products for inclusion in point of sale systems. The systems will be installed in Remington stores across the US and the Micropads will be used to enter product numbers and customer information, at the same time producing hand-written sales tickets.

BT network

FERRANTI has won a £2 million order from British Telecom for a PT7 network for the second phase of the BT's order handling system. The order includes 100 PT7 controllers, each of which will be based on a Ferranti Argus 700 computer, and 1,130 video terminals.

Air force deal

A US Air Force contract has been awarded to Honeywell for large-scale computing systems and minis worth over $50 million. The systems will serve the USAF base at San Antonio, Texas. Four DPS 8/70 systems will handle all the personnel records.

Banking on the next generation

by John Riley

COMPUTER prizes worth £20,000 were given away by the Midland Bank just before Christmas. They went to winners of an essay competition on information technology organised by the bank for schoolchildren.

The four main winners received computers of their choice to the value of £300, and their schools computers to the value of £3,000. The ten runners-up got £50 pocket calculators and their schools computer equipment to the value of £300.

Kenneth Baker, Minister for Information Technology, who presented the prizes said he was delighted that an integral part of the City was stretching out to the next generation.

The children were decisive about their requirements. Andrew Burley, 16, of Teignmouth, is getting a Camputer Lynx 48 Kbyte (launched this autumn) with a speech input unit, and wants to develop his interest in computers and the handicapped.

CDC revamp as it hits £100million

by Kevan Pearson

CONTROL DATA UK turnover broke the £100 million barrier for 1982 and the company has rejigged its management to double its computer user base. Fred Mobbs, UK managing director, claimed that UK profits would also hit a new high.

The changes have divided CDC into four major divisions: hardware and systems, services, Control Dataset and Control Data Wales.

In the hardware division Richard Hickman has taken over as UK regional manager for computer systems, and he has ambitious plans to turn around its performance.

Hickman is one of the first to admit that CDC is better known for its peripherals and service operations, despite the fact that the first products the company made, over 25 years ago, were computers. It was not until much later that CDC became the market leader in OEM disc drives.

His first action was to change the name of the division from EDP to Computer Systems. "My prime objective is to double the user base: we intend to be much more active in many more markets than we have in the past".

Hickman described the existing user base of 16, many with multiple CPUs, as "pathetic", and added, "We will not ignore our existing users, but raising the general awareness in the market of CDC computers is crucial".

He explains that CDC is known for its supercomputers, the current model being the Cyber 205, but this year the company launched its Cyber 170 800 series of general purpose machines. And it has just added an entry level machine, the 170/815, priced at £130,000.

Hickman said this was the first time CDC had been in the market with a machine in this price/performance range. Its power is rated at about 60% of that of the previous bottom model.

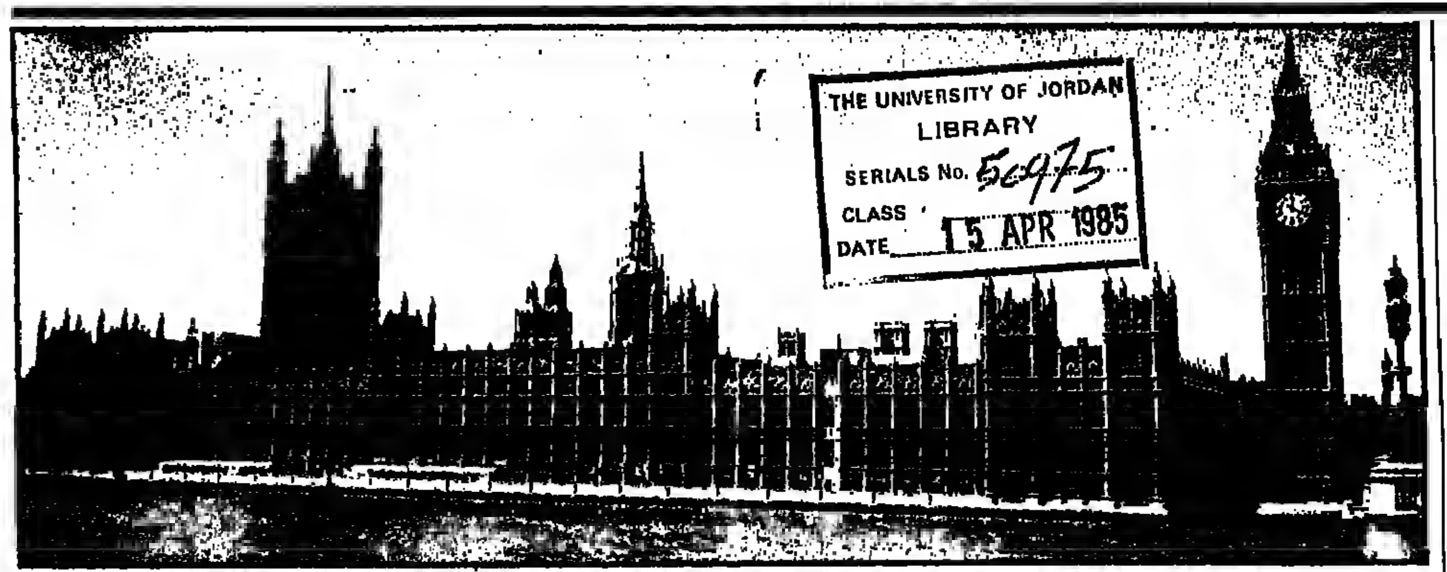
At the top end of the range there is a double CPU 170/875, offering comparable power to IBM's top 3084, four CPU, model – around 25 mips.

Hickman is reorganising his division into "industry specialist groups". Among the industries CDC will be attacking with much greater force in the new year will be manufacturing, oil/energy, government/education and nuclear research.

The company already has a presence in many of these with its Cyber 205s and its predecessors, the Cyber 76 and 7600 series, but Hickman is determined to make a impression with CDC's general purpose machines as well.

Another change that Hickman hopes to bring about is a closer relationship between CDC and the computer leasing industry.

MOBBS . . . To report record turnover and profits.



Lords, Commons and admin use various systems, but MPs do not actually get their hands on the machines at present.

Parliament shows off its systems

by John Riley

PARLIAMENT last month celebrated IT82 by holding an exhibition of its computer systems.

Demand for information at Westminster is heavy. The House of Commons library staff of 120 currently receives 100,000-150,000 enquiries from MPs each year. An instant answer is always required, so most applications of information technology at Westminster involve the libraries of the Commons and the Lords.

MPs do not actually get their hands on the machines at present, but they will be able to use a Casu Mini C microcomputer which will shortly be installed in the Commons library.

The largest system is the Polis (Parliamentary On-Line Information System) service of the House of Commons library, which has been running for two years. This handles a wide range of parliamentary topics, including questions, proceedings, legislation, etc, arising since about 1980, and refers subjects to the appropriate documentation. Pamphlets and books will eventually be added to the Polis database.

The database is updated daily by the House of Commons Indexing Unit, and the whole system is maintained by Scicon which provided the Cifer Systems terminals and telecommunications equipment.

It is linked to Scicon's Univac 1100/62 mainframe at Milton Keynes by three dedicated telephone lines. There are 17 in-house terminals and this figure will be increased to 21 this week.

Scicon also offers Polis as an external service at a cost of £55 an hour, and has about 35 users, including large companies, government departments, the Press and foreign parliaments. Scicon hopes to use this database on a private viewdata system, using an Aregon IVS-3 system run off a VAX-11/780, and the cost of this service is expected to be £57.40 an hour.

The House of Lords uses three separate systems for its library services. It bases its catalogue on the British Library's Blaise bibliographic database using a Zygal Zentac ZMS 70 terminal, and the updated catalogue is transferred to microfiche.

The main subject-based information retrieval system, installed in 1977, is separate and uses IBM's Stairs/VS (Storage and Information Retrieval System – Virtual Storage) retrieval program run on the GLC's IBM 3033 and 3081 computers.

Another system is used when MPs want to take books out: CPT 8100 and 8000 word processors are used for this purpose. There is no automated linking between any of the systems.

A range of word processors is used for large report generation. There are 11 Data Recall Diamond 5 machines, several CPT 8100s and a Philips P5003 word processor used respectively in the libraries of the House of Lords, House of Commons, and in the Speaker's Office of the Commons.

US allows four new comms companies to set up links to UK

by Donald Kennett

THE US Federal Communications Commission has opened up competition in international telephony.

It has stopped distinguishing between voice and data traffic for international as well as domestic communications and has allowed four new companies to set up links to the UK.

Telex and data traffic has been handled for some time by several international carriers in the US, but international voice traffic has been handled by a single carrier, as it is in nearly every other country.

This arrangement is not subject to any international agreement, but the tradition is strong enough to make the UK government unwilling to grant Mercury Communications the right to negotiate its own international links before giving the matter a lot more thought.

The current arrangement is that all Mercury's negotiations with overseas telecommunications bodies are done through British Telecom International, or at least with BTI representatives present.

Mercury is still having regular talks with the government about further liberalisation in international services.

Under the new US set-up, the traditional international carrier, AT&T, will be joined in the voice market by four of the five existing "international record carriers" Western Union International, ITT World Communications, RCA Global Communications and French Telegraph Cable Communications – which already carry telex and data traffic.

A British Telecom spokesman said: "It is too early to say how this will affect us. We are used to dealing with the companies as record carriers, so we do not anticipate any problems."

RICHARDS . . . Turned down cash for Optim

£4m inheritance for new firm

by Andrew Thomas

STARTING a new microcomputer company can be a risky business, but London-based Optim Computers began life last month with a considerable advantage. Optim has inherited a customer base of over 150, with 300 systems installed valued at £4 million.

Previously the communications division of Monotype, one of the BTG's charges, Optim has been set up without the help of any institutional finance. Joint managing director John Richards, erstwhile general manager of Monotype Communications, claims that several merchant banks were turned away by himself and fellow managing director Mike Burden.

"We had several offers of cash," says Richards, "but we wanted to keep the company under our control."

"We've got more incentive to succeed," says Burden, ex-managing director of Singer Business Machines and Nixdorf UK. "We have put our money where our mouths are."

The purchase of the Monotype division, for an undisclosed sum, took place in October following Monotype's decision to concentrate on its main activity, that of supplying the printing industry.

"When we heard of this, we examined the company, its customer base and the products, and I was personally surprised at the quality and range of the product line," said Burden.

"I believe that in the past, the full potential of the products has not been exposed to the public or the press. It is our intention to rectify this."

Optim will market a new dual-processor micro, the Amigo, alongside the existing Ace range. Both machines are manufactured in the US by Ontel, although Richards says that UK manufacture should not be ruled out.

The company's main market lies in the hotel and catering industry, according to Burden. Orders have already been placed by London's Royal Kensington Hotel, part of the Comfort Hotels group, plus an hotel in another major group.

"Our package can handle hotels with between 20 and 500 rooms," he says, "and that represents 78% of the hotels in the UK."

Year of the fight for supremacy

by George Black

1982 was the year that saw a Cobol breakthrough, with the seven-year battle to introduce the verb VALIDATE finally won after the US languages authority Codasyl had at last agreed to accept it. And Cobol made advances into the micro world too, with the success of Micro Focus's CIS Cobol.

But most of the news was made by the challenges of other languages and by the contest between operating systems for supremacy. In a bid to stave off the competition from Microsoft's MS-DOS and Xenix operating systems, Digital Research undertook an upgrade of its CP/M.

In the US the progress of the Rank Xerox operating system Smalltalk began to create a buzz.

In micros, Basic retained its dominance, but the advocates of APL grew increasingly vociferous and persuasive. The front line of technology gave rise to controversy on the most suitable language for the Fifth Generation of computers. The Japanese having standardised on Prolog, the British appeared to be dithering over that or Lisp or another.

But undoubtedly the biggest software talking point of the year was Unix, the portable OS which seemed set to penetrate the commercial market in one form or another. It got its own commercial user group.

Would a new language or a new operating system be enough, however, to enable data processing departments to overcome the ever greater burden of the applications backlog? Many thought not — and many decided to build and market other tools to tackle the job. Program generators and systems generators began to multiply, with their promoters vying with each other in the claims for improving the productivity ratio.

Burroughs naturally insisted that its Linc was the real answer to the problem. CMC brought in an applications language liberator for its 32-bit supermini Sequoia. Data Logic launched its Readycode Cobol applications developer. Cullinane offered an application development system for database programming.

The Oxford Software Corporation in New Jersey said it could train people in a fortnight to use UFO, its CICS program generator. P&O Computer Services provided a program developer called Ports, to speed the conversion procedure for installations going over to IBM 4341s.

And The Last One — the height of optimism, perhaps — was formally adopted by the National Computing Centre. For DP departments which decided not to handle things themselves IBM made its virtual storage personal computing available as a bureau service.

Micros became suddenly ubiquitous this year. Safe Computing launched MicroSaFeS to bring micro power to the factory floor. Computerline's project management system Micropert spread abroad into the US, Japan and Australia.

Commodore and Gemini took on Comal 80, the Scandinavian Basic language. Grundy Business Systems' Newbrain micro failed to get the lucrative BBC contract, but made up for it by a deal with Lesco for a big pharmacist's package.

The effort to establish one micro as the primary model led to ever more complex contracts being signed, Osborne Computer Corporation announced it would encourage third party software sales. ACT Microsoft struck a deal for its 16-bit software to run on Hitachi and National Panasonic micros.

And the ability to integrate systems became more important, so that companies combined to offer more user-friendly facilities. Management Science America and Peachtree began to move into the still vacant arena of mainframe and micro links.

The emphasis started to move from data availability to data presentation, with MSA, Cullinane, Sperry and others getting into the expanding field of colour graphics.

The rapid progress of technology is apt to create hazards as fast as it conquers them, at least in its early stages, and one major difficulty that loomed was that of piracy. Gadgets and dongles designed to stop piracy proliferated.

There was a suggestion that piracy could even bring a halt to the launching of new software, though this was not backed by any hard evidence. But a hopeful sign was that after a 10-year legal battle Valport got a unique US patent for a financial package.

But some did not believe that either patents or copyrights would solve things. In the UK Richard Sizer of the British Computer Society and the barrister Alistair Kelman drew attention to the inadequacy of current law to cope with the situation of computer evidence as presented in the courtroom.

The threat of computer crime was continuing to rise and yet few seemed to be taking any action to keep data secure. At the Commodore Pet Show, a strange case of piracy appeared to have been exposed when one of the exhibitors was abruptly forced to withdraw a certain product.

And the Computing Services Association decided to form a committee to advise on copyright matters and try to safeguard British users.

But none of these hurdles could stop the flood of ever diversifying software applications, among which the APL specialist I. P. Sharp offered a Consol time sharing service for firms to analyse results in various currencies.

LEVY . . . No previous knowledge of the industry, but managing a business is the same all over.

Altergo gets injection of new blood, as well as cash

by George Black

RADICAL reorganisation is in the offing at the IBM software house Altergo, which could lead to the merging of its four operating companies.

"It would have happened already if it had been only up to me," said new director Leonard Levy, "but the firm has been going for 13 years and these things can therefore take time. But I think we'll get it done pretty quickly."

Levy, who has put $2.5 million of his own money into Altergo, aims to expand its scope by recruiting a new financial director and a new head of marketing, as well as about 35 more technical staff and three or four salesmen in the UK.

The Boston office, which had not been doing as well as they had hoped, will be boosted by the addition of some half dozen men to the salesforce. And new offices are to be opened during 1983 in France and Germany to sell Altergo products.

Levy was enticed out of semi-retirement in California by his long-time friend Raj Thomas to go into partnership at the head of the software company. Levy had gone to California in 1971 after seven years as a successful Wall Street stockbroker with some 1,500 clients, mostly European.

"I moved west because I like the lifestyle and the weather and I like to live in jeans," he said. "I had no plans to go back to work and lived quite happily off my investments. But I knew that software companies were going to do well and Raj's proposition seemed very exciting."

He said he had no previous knowledge of the computing industry but argued that managing a business was the same technique whatever the type. "I learn fairly fast. I ask a lot of questions."

Levy played the stock market from the age of 16, then made what he described as "a fair amount of money" in real estate in Florida in the early Sixties.

"I was lucky. I had land where they wanted to put an airport."

He took that money to his native New York and it grew on Wall Street. "But then they changed all the regulations and it didn't seem worthwhile for me any more, so I left."

Asked whether the sudden departure of three senior members of the Altergo team, including former director Dick Jones, had been voluntary, he said: "No comment."

Travel agents' system off the ground again

MODULAS, the travel agents' computer system which crashed last spring after its promoters went into liquidation, is about to be re-piloted. But now it faces tough competition from other products.

The Modulas scheme, backed by the Association of British Travel Agents, ABTA, will be installed this month, after six years of delays, as selected offices on a trial basis. A 16-bit microcomputer designed by Future Technology Systems is to be driven by software from the country's biggest programming firm, Logica.

Tourist Technology has been set up by ABTA, FTS and Logica to steer the project through. ABTA worked closely with the Canadian company Caltrav until the latter's demise last year.

The desktop Modulas, priced from £5,500 to £6,000, is intended to give viewdata access, word processing, and a fully integrated reservations, administration and accounting system. But it is still uncertain when all these facilities will become available. It may not be until next year, so ABTA is going to have to fend off rivals such as DPAS-2 and TAS.

DPAS-2, from Computer Communications, costs from £7,000 up to £25,000 for complete system and is therefore expected to appeal mostly to agents with a turnover of more than £2 million a year, for whom CCL has been running appreciation seminars.

And since DPAS — the document printing and accounting system — is already a market leader with some 200 UK installations, the new version launched last June could make rapid inroads. DPAS is recommended by Travicom, which marketed it before CCL took it over.

Travicom set up a multi-access reservation system with direct contact to 30 airlines' computers and its terminals access computer systems on a private viewdata basis.

DPAS had four different methods of producing tickets, invoicing and accounting before the new version was developed in South Africa to eliminate what customers saw as existing weaknesses.

A 1982 survey showed that half of the UK's travel shops — some 2,800 — were on Prestel and almost 400 had Travicom's terminals, mostly in the South-East.

But nearly a third replied that computerisation was still too expensive and a quarter thought that their organisation was too small to justify it.

Fewer than a tenth at that time [illegible] Around 100 shops had taken on systems without computerised ticketing — only 14% had gone in for this.

But TAS, Travel and Specialised Computer, which was set up by Trevor James in 1981 as sole UK outlet for Datasaab/Ericsson products, has like CCL made the link with Travicom. And James said he intended to have a micro system on the market by June.

"It will be aimed at agents with a revenue below a million a year and will be a thoroughly tried and tested system," he said. He estimated a potential market of two to three thousand agents.

NORMAN . . . Off-the-shelf buying will give OEMs a hard time.

Products for DEC OEMs

by John Riley

A PROMPT response to DEC's move into the office automation market has been an announcement by Warrington software house Direct UK of a new range of products aimed specifically at DEC OEMs.

"DEC is now offering solutions for the first time through its office automation products and with the user buying everything he needs off the shelf now, its OEMs are going to have a difficult time," commented Dr Stephen Norman, Direct's managing director.

Direct's new range, the AVP series (Advance Video Processor), allows OEMs and system houses to take a basic Direct 831 terminal with VT131 personality, and add on extra boards and facilities, including units with Plot 10 compatible graphics, local CP/M processing with up to 1.2 Mbytes integral floppy disc storage, and 10-Mbyte external Winchester disc facility.

The communications and microcomputer elements are completely programmable as Direct offers access to the source code, and the OEM can tailor the product to meet most end user requirements.

Structural programs with Cobol

STRUCTURED program design can now be translated direct into Cobol code, in a new bolt-on enhancement to the compiler from S+PC of Wimbledon.

Announcing the new version, S+PC's John Piggott said: "I hope that it will be adopted by a large proportion of installations in this country."

Many people have been reluctant to take on new compilers because of the cost and the scale of the task, he said — in spite of the tremendous general dissatisfaction with previous versions of the language over the years. Now it would no longer be necessary to translate structured design manually into Cobol code.

"The long public debate on this subject has led to Ansi 82 — but so far that is only a piece of paper and what we need are new compilers," said Piggott.

S+PC's enhancement allows users of the IBM OS/MVS operating system to do structured programming without changing their compiler. And it is also compatible with S+PC existing versions of ICL Cobol. Automatic CICS processing is included.

Installations still stuck with the Ansi 68 version which had not yet made the move to Ansi 74 would be able to leapfrog and go straight onto Ansi 82, said Piggott.

Important features according to the developers are total upward compatibility and only a small compile-time overhead — there is no run-time overhead.

An optional path test facility prints a trace of the run alongside the main statements listing. Headings can be dropped to give a shorter program.

The wrong Gordon Bell

Bell of Digital Equipment

THE wrong Gordon Bell appeared in a photo with a December 2 story on Software Ireland. The Gordon Bell in the photo is vice-president, engineering, of Digital Equipment, the man who invented the PDP-11, and not the Gordon Bell of Software Ireland who has gone to live in Silicon Valley. Our apologies to both.

Semis push further up the technological trail

IN a year characterised by continued recession for the semiconductor industry, there were flurries of activity pushing products further up the technological trail.

Microprocessors moved to longer word lengths as 16 and 32-bit devices were launched — on paper if not in silicon. Memories got bigger, with RAMs nudging 256K and ROMs reaching out to the megabit range.

Gate arrays became important parts of many manufacturers' ranges as the semi-custom market expanded. And in all these areas there was a widening adoption of CMOS technology to implement these denser chip designs.

Intel was the latest to hitch its waggon to CMOS, with the launch of microcontrollers using its CHMOS process in October which heralded a technology changeover in all product areas.

On the processor front, the main feature was an emphasis on family ties. National Semiconductor's 16000 family of advanced microprocessors made its much delayed debut in June, a couple of months after announcements of extended families for the established Intel and Motorola offerings.

All three manufacturers have now announced chips with most permutations of external and internal bit sizes up to 32 bits.

But for those wanting 32-bitters more immediately, good news came from NCR. A 32-bit chip set is due for sampling early this year, which should be noticeably sooner than the offerings from Intel, Motorola and NatSemi, and the promised Z80000 32-bit addition to Zilog's Z8000 range.

DEC got closer to putting a Vax on a chip as more powerful PDP-11s appeared on single chips, while Hewlett-Packard brought forth its awaited 32-bitter in November, but only in its own HP 9000 computer, not on general release.

Family ties stretched further than just varieties of processors. Software development support was pushed strongly, as was the timely development of peripheral circuits. Local network chips started to put in an appearance among these.

Perhaps because of the depressed financial state of the industry, and the huge investments needed to design new chips, joint ventures between manufacturers grew more common.

Gate arrays saw similar emphasis on software support — this time in design systems to get from the required circuit function to the actual gate array. Texas Instruments, Motorola (which joined up with NatSemi in its attack on the CMOS array market) NatSemi itself, and LSI Logic were among those pushing ease and accessibility of array design for customers.

In memory chips the trend was as ever to bigger and better. The 64K dynamic RAM market continued its explosive growth in volume and drop in price. Japanese manufacturers churned out millions of devices a month, led by NEC, Fujitsu and Toshiba, while th Americans made a comeback with "second generation" devices amid cries of foul about alleged dumping by the Japanese companies.

Britain's troubled venture Inmos, increasingly in need of cash as the year drew on, launched its 64K dRAM.

All sorts of memory chips grew bigger. 256K dRams started to appear from Japan. ROMs stretched in the megabit range, with NEC and Oki announcing that they had built 1 Mbit devices. Bubble memories, surging forward after 1981's spate of dropouts with a second-source deal set up by Intel and Motorola, got up to 4 Mbits on a chip from Intel.

Hotter competition as NatSemi's Col Rada launches advanced micro family.

IBM establishes the latest in micro clichés

IT WAS a good year for microcomputers — but not one that made choices any easier for people trying to buy machines. Products multiplied at all levels as new companies formed, and established ones jumped into the booming micro market.

Business microcomputers were overshadowed throughout the year by the looming presence of the IBM PC — still not launched officially here but available as grey imports and at times seemingly synonymous with the term microcomputer.

Many companies launched IBM-compatible machines, some of which started to appear in the UK. Among these were the Columbia PC, which boasts hardware and software compatibility, and Hitachi's 16000.

A new micro cliché emerged to compete strongly with the 64, Z80, CP/M machine of past years. This is the 128K, 8088 machine running MS-DOD. Much of the running had been made by ACT with its Sirius 1, through aggressive marketing. Periodic tiffs with dealers and rival distributor DRG over the Victor version of the machine did little to dent ACT's enthusiasm.

Higher up the business micro scale, where multi-user operation and multi-tasking become important, the Motorola 16-bitter and the Unix operating system seemed set to make the running. Machines in this mould were launched by Fortune, Altos, Corvus and Wicat — among many others.

IBM was joined by most of the other large mini or mainframe manufacturers in offering micros. Olivetti came in with the Z8000-based M20; Wang, NCR and Burroughs plumped for Intel-based systems; while Data General and DEC went with their own processors.

Portable micros made an impact, with Hewlett-Packard coming in and making the market look more respectable and Epson seeming set to make it grow. New machines appeared with a variety of interpretations of "portable", and a range of capability from fairly standard CP/M machines to claimed IBM PC compatibility.

But in volume terms the greatest growth was in the lowest end of the market, the home computer. Sinclair added the Spectrum to its stable while ZX81 sales ran and ran. Acorn overcame production problems — which also plagued Sinclair — with its BBC machine, and Commodore claimed a million sales worldwide for its Vic 20.

Commodore 'can't get enough to sell'

WHILE 1982 brought in many new names to the micro scene, the holders of the biggest slices of the market both had good years.

Commodore's UK marketing manager John Baxter says he cannot get enough to sell. "And no-one with an empty warehouse can complain about the state of the market," he adds.

Most sales have been for the Vic 20, but the 64 launched during the year with the 700 and 500 series at the top of Commodore's range, looks set to take off spectacularly.

At Apple, Baxter's counterpart Keith Hall, who moved over from Commodore in 1982, looks back on a year in which Apple has concentrated on consolidating its dealer network.

Hall cut the numbers of dealers, and sees a general move upwards in quality.

HALL . . . Confusing year.

But he sums up the year for the micro industry as confusing. "There are now 101 manufacturers competing with Apple," he says, "and that has made things confusing for dealers — let alone the end users."

Micro News is compiled by Robert Parry

COMPANY NEWS

High tech gives the City a Christmas bonus

by Roo Coates

THE year ended with a burst of good news for the UK's high technology companies and for a fairly large number of lucky Stock Exchange punters.

Cable and Wireless, long known as the P&O of the telecommunications world – at least until shipping went into decline – announced a nice half-term bonus for its new shareholders. Profits nipped up to £67 million pre-tax for the six months to September 30, a jump of £22 million over the previous period.

Closer to the bottom line trading profits were up £13 million to £54 million with a windfall boost due to sterling exchange rate changes of £5 million.

And for those lucky enough to get in on the ground floor when C&W was sold off in a mini-Klondike this year the directors are shoving up the interim dividend from 2.6p to 3.2p per share. Operations in the US are one of the brighter spots for this glowing company.

Another group of happy shareholders are those who bought ICL shares at the bottom. With news that the dynamic duo of Laidlaw and Wilmot have trimmed the ship, turned losses into profit and are to launch a rights issue, a fair number of those who bought shares for 20 odd pence are poised to turn them over at a share price in the 70s.

It has been a reasonable year for those with enough money to punt on computer companies on the Unlisted Securities Market as these have been climbing aboard at a steady rate all year. SDL became the first of the major software houses to move into the market when managing director Philip Swinstead took it to the City in early November. In the same week two other computer companies made the same move – Irish-based Memory Computers, which made it on time, and Manchester-based NMW which made it the following week.

The USM lost one computer company when Star heaved itself into the first division of a full Stock Exchange listing. Star's David Blechner is highly complimentary about the USM and reckons to have saved the company a six figure sum by taking the staged route to the Exchange.

LSI/CPU from Woking again delayed its much heralded move to the market and is now talking about next April as a probable date.

For those outside the magic circle, business was more than moderate and 30% increases in turnover were so common as to be almost unnoticed. The UK's oldest software house, CAP, celebrated its 20th anniversery by pulling itself out of the red.

Across the channel the news was nowhere near as good. AEG-Telefunken crashed into the hands of a receiver who is still trying to sort out the pieces, with the help of the German banking system and the government. And in France the new government is struggling to put its entire electronics industry into shape.

Assembling high technology industries is no easy task as the British Technology Group has good cause this year to know. Its CAD/CAM interests are still in some disarray despite the cliff-hanging sale of Compeda to Prime. And no one really knows what state our very own stab at chip-making, Inmos, is likely to be in by this time next year.

At the end of IT'82 the UK's computer industry has weathered both the publicity and the recession in good shape. But the Prime Minister may be right and the hard part may be ahead of us – it usually is.


SWINSTEAD . . . Took SDL to the Stock Exchange.

Televideo up 300%

by George Black

TELEVIDEO, the Californian small systems and terminals maker, expects to record a $120 million turnover at the end of this year, up nearly 300% on 1981 – and is aiming for $200 million by the end of 1983.

"We're growing even faster than Apple did," said Peter Allen, at the firm's UK offices. Televideo exploits two British outlets, Datatype of Cwmbran and Midlectron of Derby, recently taken into the Visionhire group.

Small systems have grown from a $2 million enterprise to $60 million in the last year, while terminals have gone up less dramtically from $34 million to $60 million. Televideo, the No 2 terminal producer after IBM, has shipped over 100,000.

But it is in the 8-bit systems area that the major growth has come. In 1983 Allen expects the emphasis to turn more to the 16-bit machines.

The company, founded in 1979 on a $9,000 investment by Phillip Hwang, combines 8-bit and 16-bit CP/M systems, allowing buyers to upgrade from single, standalone systems to a multi-user network.

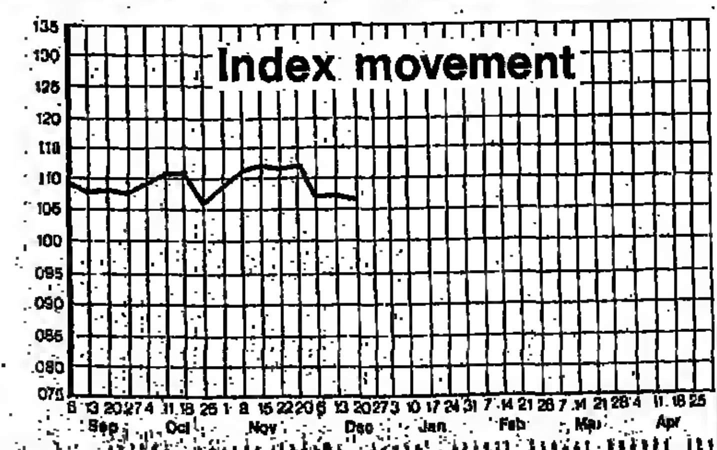
SHARES TABLE

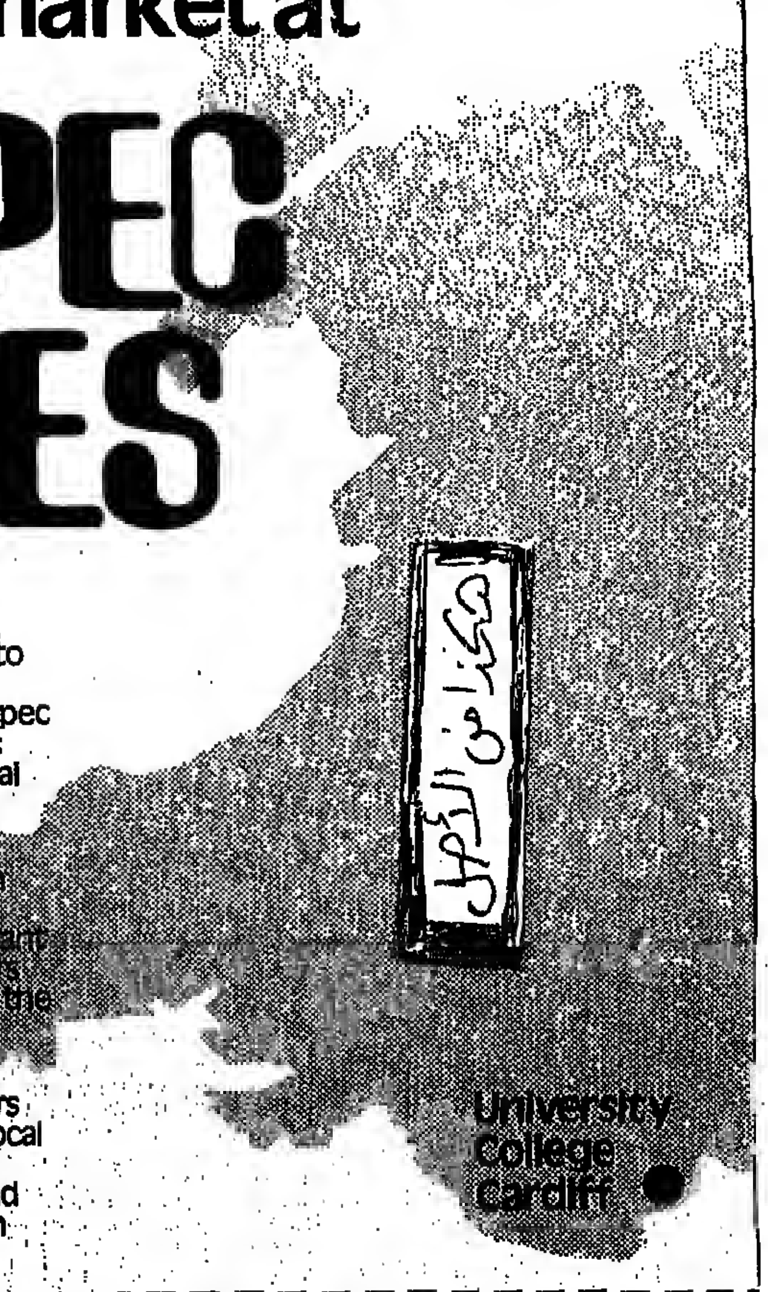
The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

Date 22/12/82 Index 108.70 Change –.86

Pence 1982 High	Pence 1982 Low	London Stock Exchange Stock	Pence Price	Pence C'nge	$ 1982 High	$ 1982 Low	US Stock	$ Price	$ C'nge
285	151	ACT (App Comp) (25p)	243	–12	33	18	Amdahl	17¾	–2¼
189	160	BOC Int. (25p)	169	–4	32	11⅛	Apple Inc	21	–½
40	16	B. Bov Kent (25p)	41½	–1½	36½	21	Auto Data Pro	35½	–¼
127	101	Chubb (20p)	116	+1	46¼	30½	Burroughs	40	–3⅛
148	48	Cole Group (25p)	140	+14	17	7¾	Comp Auto	16	–1
303	173	C.A.S.E. (10p)	173	–12	19½	11⅛	Comp Sciences	18¼	–1¼
730	448	De La Rue (25p)	645	–8	18½	8½	Comshare	11	–1
350	725	Exdel (25p)	765	–10	41½	22	Control Data	38⅛	–1½
494	212½	Ferranti (50p)	462	+36	44	21½	Cray Research	39½	–4½
248	169½	GEC (25p)	210	+12	53¼	20¾	Data General	39¼	–⅛
85	33	ICL (25p)	74	–1	46½	11⅝	Datapoint	18½	–1½
47	35	Kalamazoo (10p)	36	+1	33	18¾	Dataproducts	32¼	–¾
300	273	Kode Int (25p)	305	–15	107¾	62⅛	Digital Equip	98¾	–10⅞
315	218	Memec (10p)	283	–2	49	19⅞	Elec Data Sys	45⅞	–1⅛
182	110	Muirhead (25p)	165	+18	6¾	3½	Gen Automation	6⅛	+½
440	318	N'market (1981) (£.05)	435	–8	38¾	22	Harris	35⅝	+1⅛
975	570	Norsk Data	978	+13	78¾	36⅞	Hewlett-Packard	78½	–⅜
470	240	Office & Elect (25p)	240	–20	103¾	61½	Honeywell	89¼	–½
637	445	Philips Lamp (Fl 10)	637	+7	40	20¾	Intel	33¼	+3⅛
662	348	Plessey (50p)	656	+8	98½	57	IBM	93½	–
87	29	Quest Auto (10p)	40	+3	58⅛	36⅛	Litton Ind	48½	+⅛
607	363	Racal Elec (25p)	578	+35	16¼	9¾	MDS (Mohawk D)	14	–1½
282	171	Rediffusion (25p)	247	+22	21	8	MSA (Mgmnt Sci)	17½	–3⅛
268	180	Sul Comp (10p)	262	+12	18⅛	7⅜	Mngmnt Assist	10⅛	–1⅛
465	380	Thorn-EMI (25p)	417	+2	12½	6⅜	Modular	11¼	–1⅛
145	74	UGT (50p)	148	+30	88½	50¾	Motorola	88	–1¼
					24½	14	National Semi	23	–
					91¼	40½	NCR	87⅛	–2½
		Unlisted Securities Market			31⅜	17¾	Perkin-Elmer	37¼	–1⅛
					37½	16¼	Prime	36½	+¼
90	82	Bus Comp (10p)	85	–	40½	28⅜	Raytheon	44¾	–½
205	75	Consult (C&F) (10p)	185	–5	28¼	14	Signal	23¾	–¾
184	160	Int'europe Tech (20p)	170	–6	34	21	Sperry Corp	32	–1¼
282	245	Io Tech (25p)	247	–	34½	16½	Storage Tech	31⅛	–2⅛
60	34	Knight (5p)	34	–1	51⅛	18¼	Tandem	29¼	+2
218	205	Micro Bus (10p)	200	–	63¾	23⅛	Tandy	62¼	+1⅛
159	212	Miles 33 (10p)	141	+8	140¼	101⅜	Texas Inst	137¾	–2½
170	85	NMW (£1)	154	+4	31¼	12½	Tymshare	17	–2⅜
125	43	Rolfe & Nolan (10p)	98	–2	55	28½	Wang Lab B	58	+¼
120	75	ScanData (10p)	110	+5	12¼	7½	Wyly	8¼	–1½
106	80	Trident Comp (10p)	80	–6					
112	78	Zygal Dyn (5p)	95	–					
160	160	Memory Comp (Ot 10p)	160	–					

The table shows the closing prices on December 22, 1982. The Share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.





جزء من الخليج

PLATFORM

Barrie Sherman will soon be leaving the Association of Scientific, Technical and Managerial Staffs, where he was head of research.

How do we explain technology to the kids of Brixton?

THE sciences and technology are too often viewed as synonymous with progress, especially by the uncritical, and indeed as good things in themselves. This has proved particularly true of computer systems and what has become known as information technology.

While some have argued that the new systems have some disadvantages, especially in employment terms, the basic premise of "goodness" has remained unchallenged. What is worse is that to even question the validity of these technologies has been to lay oneself open to the much-abused insult of Luddite -- the computer age version of Leper. Unsound rather than unclean should be the modern ware-word.

However, the media are now turning their attention to the biological engineering sciences, and as 1982 draws to a close it may be possible to sit back and take a longer, cooler look as to where the newer technologies may lead.

A recent BBC drama series, Play for Tomorrow, set around the end of this century, was almost universally gloomy. Despite the view that the new systems had removed most of the material problems in life, the writers portrayed an alienated and spiritually bankrupt society.

The unanimity was disturbing; as the plays were successful they must have struck a chord with a wide cross section of the public. This would tend to suggest that a broadly held view of computer technologies is based on their inevitability and a high degree of foreboding – not the best of combinations for a political system ultimately based on consent.

Politicians are obviously preoccupied with the short term – their time horizon tends to be five years or the date of the next election. They are not alone in this approach; almost all British institutions, industry and commerce suffer from the same malaise, one which could be plausibly be blamed for many of the seemingly intractable problems in today's Britain.

If such an approach was counterproductive in the past, it is nothing less than disastrous in the context of a swiftly changing technology. It is just too tempting to go for the option which can have an almost immediate impact.

The municipal building programmes of the 1950s and 60s are classic examples of the problem. The now almost universally reviled high rise flats were at one stage offered as the swift solution to our housing problems and even won architectural awards. A longer perspective at that time may well have persuaded the planners that the traditional street system had a long history of providing a good community basis.

Will our approach to computer or information technologies suffer from the same short-term approach?

There is a critical series of choices to be made. These involve the social and political implications of computer uses in the most basic of ways. Who benefits from their introduction and what form do the benefits take? Will the new systems be comprehensible to the mass of ordinary people or will they reinforce the existing trend towards the concentration of information and expertise into even fewer hands?

Will we, as a nation, sit back and let the market system work, with all of its attendant evils of maldistribution or will we insist on some form of social control and redistributive mechanism? The new systems are seeping slowly into the working matrix of our society, far more slowly than is the case in some of our competitor countries, yet their impact is being felt both practically and psychologically. The uncertainties surrounding work, the inability of the government to provide stability at work even where the systems are relatively benign, are matters which affect the population at large.

Without a genuine debate, and this must involve the professionals in the computer industry, a breakdown of trust is more than likely and with it a collapse of local communities as well as political credibility, locally and centrally.

As things stand at present how can we explain to the kids of Toxteth or Brixton the benefits of text processors or the communications revolution based on satellites? It is not that the technology is an inappropriate one, it is more a matter of the political time being totally wrong.

To sum it up, the greatest opportunity offered by the new technologies to a growing number of people, especially young ones, is the increased opportunity for larceny offered by video recorders. If we believe that this is just not good enough then we must say so; a debate must begin, starting from first principles.

It is time that computer professionals took their wider responsibilities far more seriously – it may be a painful process but in the end it will prove to be most rewarding; if only because not doing so will be seen as anti-social as the debate continues without them.

Barrie Sherman

PROFILE

Sorry, but the Golden Age has been put off to 21st Century

WITH all the gloom, despondency and general unemployment depression that is usually linked to talk of new technologies it is good to meet someone with a positive outlook on what technology has to offer. As well as Clive Sinclair, who predicts that the 1990s will be a new Golden Age for Britain, there is another optimist around – Mike Aldrich, managing director of Rediffusion Computers.

Like Sinclair, Aldrich has been in the computer business for long enough to know what he is talking about. He spent 15 years working for the US giants Burroughs and Honeywell before joining Redifon Computers in 1977. In the five years since Aldrich joined, Rediffusion has more than doubled its turnover from £8 million to £17.6 million, and has diversified its product line to include videotex and office systems.

Although Aldrich agrees with Sinclair about what is going to happen, he believes Sinclair has probably got the dates wrong. "The 1990s is a bit early, but at the beginning of the 21st Century we should be in the middle of a new Golden Age."

One of the main reasons for his optimism about the future is the recabling of Britain. He is one of the six members of ITAP, the Information Technology Advisory Panel that gave the first report on cable television in March.

"I thought cable television was a misleading name. It implied it was all entertainment," said Aldrich. "I wanted to call it local loop systems or something like that. Anyway, I think the effects it will have will be enormous – the same as when homes became wired up for electricity, or when gas was piped in or when homes got telephones."

He thinks the social effects will be enormous. "Before the industrial revolution people used to work at home in things like cottage industries. That all changed with the industrial revolution and people had to leave their homes and go and work in factories. At the moment people who work at home are an oppressed minority, usually women. But there's a growing group of people who work from using a computer terminal – there are over 1,000 of them in the computer industry at the moment. And that sort of thing's bound to increase with cable TV, especially with technical and management staff."

ALDRICH . . . *"No more working in boring offices."*

Cable TV, he claims, is also one way for Britain to increase its employment, rather than creating unemployment, as most commentators seem to think. "All we have to do is put investment where it's needed, in new industries like cable TV rather than in the old manufacturing industries. And we really do have exportable skills in these areas.

"To begin with we have the language. We're still the greatest exponents of the English language, so when it comes to communications then if we can't make it, who can? Then there's our education system and our culture. Just look at the British theatre, TV novels, and we've got the best newspapers and magazines in the world. The reputation of the BBC for news is first-class, it's an ambassador for the UK – we've got a lot of skill around, you know."

But it's not only in that area that he thinks we can export. There's the technology angle as well. In America 60% of the cable systems are obsolete, according to Aldrich. That's because most of them carry a maximum of only 12 channels, and only about a dozen cities have a two-way system. Most of them are the "yes/no" type systems that you see on American quiz programmes. So there is a very big market in the US for the British type system.

"Rediffusion Consumer Group is one of the largest cable producers in the UK, so we hope it will find favour in all the recabling," added Aldrich.

In spite of the shake-up that all this will involve, Aldrich sees a more cohesive society emerging. "Look at the system we have now of dormitory towns – what sort of community life is that? The ten-year-old kids of today are the ones who are going to benefit. They'll have to be far more adaptable in their attitude to work than we are, as they won't have one job for 30 years, they'll have to change jobs. But I can see life becoming far more pleasant.

"We'll be able to stay at home, and not waste our time commuting and working in boring offices. We'll be able to order our food via the TV and have it delivered. No more of those frosty looks you get from shop assistants. I think courtesy is on the way back."

DOWNTIME

Old Chad's Almanac for 1983

ONLY the other day, as I stood on a high place, surrounded by my followers and admirers, it seemed that the veil of all the years was lifted from my eyes and I saw clearly the future of computing. In response to overwhelming demands, I now offer to you Old Mother Chad's predictions for the year ahead. Ignore them at your peril.

January. The cabling of Britain using optical fibres starts in earnest. Massive demand for glass results in a nationwide glass shortage.

February. ICL signs a deal with major Japanese manufacturer for the supply of British-built hardware to Japan, where it is to be relabelled and marketed under the Fujitsu name.

March. IBM announces the acquisition of the rights to ICL's George 3 operating system. "This is the future of operating systems," says an IBM spokesman. Suicide rate in Putney increases by 500%.

April. Channel Four reveals that the entire UK computer industry is merely a front for the CIA, which is in turn a part of the KGB plan for the appropriation of Western technology.

May. Channel Four admits to a bug in its computerised newsroom. Allegations of CIA involvement in the UK are strenuously denied by top technicians at GHQ Cheltenham.

June. The Association of American Micro Manufacturers send a letter to Prime Minister Maggie Thatcher pledging total support "for our British cousins". The US firms agree to halt all manufacturing for 12 months to allow the British manufacturers to sell unopposed in the US. The British Micro Manufacturers Group claims that the measures are "not far-reaching enough".

July. Clive Sinclair sells Sinclair Research. "I'm fed up with all this entrepreneurism," he says, "I'm going to raise sheep in the Falkland Islands."

August. Argentinian forces threaten to invade the Falklands. "We claim Malvinas on the grounds that Sinclair Sheep Breeding plc has not delivered any of the £49.95 micro ewes ordered by us last month," says a spokesman for the military junta.

October. Embarrassed government officials admit that the new system at the DVLC in Swansea has a few bugs. Most serious of these is the loss of the month of September.

November. September is found on a rubbish tip at Reading.

December. Researchers in Bulgaria announce a new ¾-inch, triple-sided, quintuple-density floppy disc, in the hope of forming a new standard. The world laughs. IBM adopts the standard. The world buys.

January 1984. Chad knighted for the accuracy of his 1983 predictions.

Bad timing

FINANCIAL advice received from ICL Computer Users' Association chairman David Kelson just before Christmas is deserving of a wider audience.

"Buy ICL shares before the year-end figures are announced," pronounced Kelson. "What do they stand at now?" he added.

"Around the 83p mark," replied an admirer.

Kelson fell silent for a few moments, then spoke again:

"*Sell* ICL shares before the year-end figures are announced."

Too late.

The power of prayer

FOR most people, said some cynical philosopher, prayer is no more than concentrated wishful thinking. But according to a newly formed dealer of Triumph Adler computers, such wishful thinking can be successful.

"If we need anything, we pray," says Les Green, one of the founders.

The company has flavour among computer dealers, since all its members are Christians who have been born again to rediscover the Lord after a lapse. The name is Christian Computer Company.

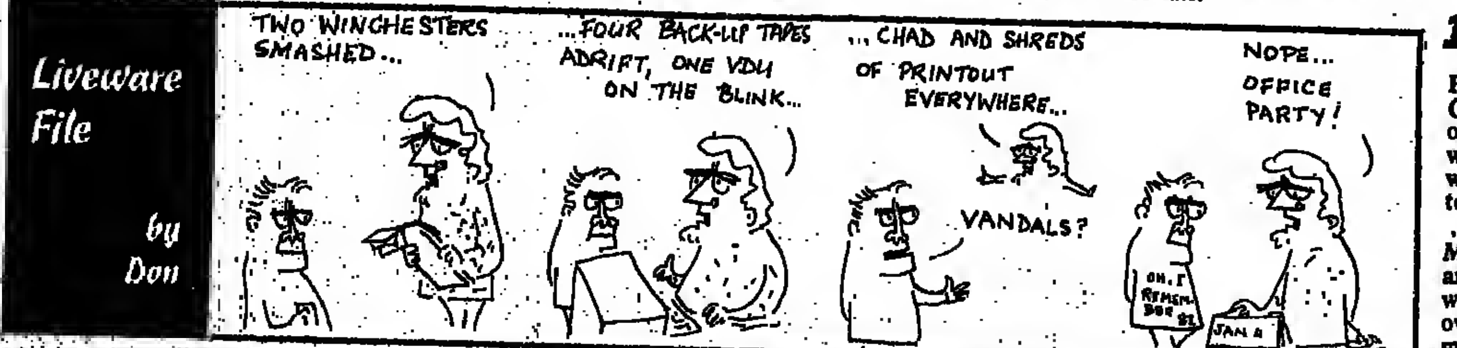
"We were born out of a vision from the Lord," says Green.

I say that the Christian Computer Company has a rare flavour. It is not unique. There is also a company called Logical Choice, formed from Christians within the church of St Clements.

Chad

10 YEARS AGO

FROM COMPUTER WEEKLY OF JANUARY 4, 1973: President of the IEE, Dr Eric Eastwood, was knighted . . . An agreement was signed for Inforex of the US to acquire Scan Data Corp . . . Industrial Development Minister Christopher Chataway announced that the government would make £10 million available over the next seven years for the manufacture of integrated circuits.



ComputerWeekly
Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS
Thursday, January 6, 1983

UK is failing to communicate

DOUBLETHINK is pervading UK efforts in information technology. The Focus Committee, for example, set up by the government under the leadership of a Minister and with a membership drawn from the top levels of industry, has the objective of accelerating the development of essential IT standards.

Yet this committee is ignoring what for the past year has been described as one of the most important issues facing this government – proposals for a national wideband network.

The UK has made a point in the last year of claiming a number of firsts: Packet switching, fibre optics, viewdata, teletex, and even the first country in the world to have a micro in every school. That is all well and good, but being first over the line does not necessarily mean that one has won the battle; only the race.

The malaise in the UK information technology industry is that its many good ideas have given us little commercial advantage. A case in point is the failure of the UK to put any proposals before the US IEEE 802 local area networks committee to promote the UK's belief in switched star systems (see story Page 3).

The term information technology was coined to describe an area that is expected to become bigger than the sum of its parts – telecommunications and computing. But even the Alvey Committee, which was given the brief of formulating a UK programme for advanced information technology, and led by a man from British Telecom, omitted any mention of telecommunications.

Doublethink has been illustrated on a number of occasions. Last month, when Industry Minister Kenneth Baker described the government's plans for a cable network, he emphasised that the interactive services of the future would be the raison d'etre of the cable network.

But in a television interview the following night he didn't even mention interactive services; it was the opportunities in the entertainment industry which caught his imagination.

The Department of Industry put considerable effort last year into an Information Technology Year campaign. So useful was it that the regional IT committee are to continue to get funds this year.

But World Telecommunications Year, handed to it on a plate by the United Nations, has so far been ignored. And this at a time when the word "communications" is on everyone's lips, if not yet worked out in their minds.

World Telecommunications Year was announced in 1981, but two weeks ago a DoI spokesman said the Department, still looking into where it could fit in, has yet to decide anything.

UK interest in information technology has the tendency to exhibit a debilitating mixture of the desire to influence the course of progress and the urge to wait and see what develops elsewhere.

The trumpet blowing about UK firsts in packet switching, optical fibre communications, and viewdata has been followed by no cavalry charge. The initiative in these areas has passed overseas because others seemed to be quicker to take a long-term view on their commercial viability.

In packet switching, UK ideas first saw practical application in Spain, Canada, the US and France. In optical fibres, UK development has concentrated on the single area of long distance telecommunications, while Canada, Germany and France have picked up their potential for mixed media communications. In viewdata, constant expectations of imminent market growth have blinded its developers to the need to adapt their ideas to Open Systems Interconnection standards and to combine efforts with teletext service providers and cheap micro makers.

The UK has an enormous wealth of expertise in communications. We will be a technological backwater only if we are too cautious to take up the challenge.

Here's to World Communication Year '83.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Len Unsworth of Salford, who wins £5.

> Russia's massive espionage campaign is claimed to be centred around California's Silicon valley, that throbbing 40-mile stretch of high-technology factories and laboratories which gave the silicon chip its name.
>
> *Daily Mail*

LETTERS

An exclusive club?

LOOKING through your appointments section it was with increasing despair that I turned each page. There were jobs in abundance, particularly in programming, but not one of them was worth my while applying for.

Unfortunately this is nothing new in my case but it seems that the computer industry as a whole is becoming an exclusive club, with very strict membership rules.

I recently left Polytechnic with an HND in computer studies and am currently struggling to find my first job; after months of constant applying I am still signing on the dotted line at 11.15 every Wednesday morning. Nobody is prepared to give me a chance due to my lack of work experience.

There must be hundreds of people who are in exactly the same position, all caught in the old "catch 22" situation whereby you can't get a job without experience but need experience to get a job. It is a situation that is becoming ridiculous. The area of the job market we have to aim at is rapidly dwindling.

Even the most senior programmers, analysts, DP managers etc had to start somewhere; all we want is a start, it's not a lot to ask.

We are the future of the computing industry – and there will be no future if we are neglected today.

D. PAGE
Machen, Gwent

Functional languages

I HAVE been much encouraged by the interest shown in functional languages, as typified by articles in publications such as Computer Weekly in recent weeks. However, I cannot help a sinking feeling at the apparent determination of the computer industry to make the same mistakes with the new generation of languages as has caused so much distress with the old.

I refer to the tendency for these languages to leave many essential facilities implementation dependent, and the resultant proliferation of dialect.

Functional languages, with their minimal restrictions on application-oriented extensions by the programmer, need very few, simple, input output, etc facilities for use as building blocks.

Please can we have the unified standard now, before most people have invested in the new languages?

GARY M. BILKUS
Co-ordinator
Utell International
London W6

IBM grows in Spain

JACK GEE was wrong (CW, October 21) in stating that IBM transferred part of its production facilities from France to Spain as a result of discrimination against the company by the French government. The decision to establish the Valencia manufacturing plant in 1974 and its expansion since then, reflect the healthy growth of IBM's business in Spain.

Neither is it true that "turnover generated by the French subsidiary no longer justified investments." IBM France investment has continued to grow and in the last four years alone has totalled more than 8.4 billion francs.

M. D. STOTT
External Communications Manager
IBM
Portsmouth

Attractions of Biarritz

I WAS interested to note (CW, December 2) that "Engineers will flock to Biarritz to study France's latest high tech venture."

If they can't think of a better reason for going to Biarritz I am seriously worried.

D. SIMPSON
Sheffield City Polytechnic

No connection

WITH reference to the article by Boris Sedacca (CW, November 25), we wish to make it clear that we are in no way connected with the contract agency Computer Software Services (CSS), which is featured in the story.

CSS International is a computer services organisation offering a wide range of information services to leading UK companies. It is part of National CSS Inc and a member of the Dun and Bradstreet group of companies.

J. W. SHARKEY
European market manager
CSS International (UK)
London SW1

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

Collaboration with industry

JOHN RILEY is right (Cuts force universities to link up with industry, CW, December 2), although in many cases the links were established years before the latest UGC cuts. For example, Bath University's link company South West Industrial Research Limited (SWIRL) was set up 12 years ago, and has been active in a wide range of technological areas ever since.

At SWURCC we have had a policy of active collaboration with industry since our establishment in 1975. As a result our users in Bath, Bristol, Cardiff and Exeter have been provided with more computer power and better facilities than would otherwise have been possible. Other universities and polytechnics have benefited too, from the availability of our compilers, communications and other software at a nominal charge only (current examples include the Honeywell Multics Algol 68 compiler and our p-system interpreter for running UCSD Pascal under Unix).

We find that industry and government departments welcome collaboration with university institutions which have shown themselves able to deliver high-quality products on predictable timescales, with a willingness to provide long-term maintenance where required. This often provides the means for us to develop and extend our skills in important areas of new technology; a good example here is Ada and the APSB.

In our experience it is always possible to get some funding to support work you want to do – the European ESPRIT programme is just the latest of many schemes to encourage development and collaboration in information technology throughout Europe.

Co-operation between universities and industry is growing stronger and stronger each year, and nothing but good can come of it.

MARTYN THOMAS
Deputy Director
University of Bath

Joint effort

WITH reference to the letter from Jeremy Biggs (CW, November 7), the emphasis may be misleading. The port of the UniPlus+ operating system was a joint effort by Root, UniSoft and Bleasdale personnel.

M. J. KINTON
Root Computers
London, EC1.

What CP/M stands for

I DID not see the comment in the *New Scientist*, (1984 and all that, December 2) but apparently they do not know what CP/M stands for. However, your comment was the second time in a week that I have seen the abbreviation referred to, by publications which should know better, as the Control Program for Microcomputers.

My company has several pieces of equipment running under this system and in the manuals for each is an acknowledgment that CP/M is a trademark of Digital Research, of Pacific Grove, California, and stands for Control Program Monitor.

Anyone operating the system, therefore, who does not know what the abbreviation means, presumably has not taken the trouble to read his manual.

Please set the record straight, before this erroneous translation becomes accepted, through having been seen in the "right" places.

Incidentally, this case apart, I find your publication very interesting and informative, seeming to cover every aspect of news of our business.

BARRY HOLMES
Divisional manager
Lartigue Computer Services
Cleckheaton, West Yorks

IN 1984 and all that . . . (CW, December 2) you quote some of my immortal prose: At the moment . . . "CP/M" (Don't ask what the letters mean; no one knows).

If I'd had space in *New Scientist*, I'd have elaborated to this effect: People think they know what CP/M means – Control Program for Microcomputers. However, when it was first written it is thought to have meant: Control Printer/Monitor, which would explain the otherwise mysterious "/".

But Digital Research's retroactive marketing has rewritten history and abolished this only slightly less palatable interpretation. The result is that only people who don't know what it means think they know what it means. Those who know that it might mean more than it seems to mean know that they don't know what it means.

Tell D. Astle to send his £5 back.

PETER LAURIE
Southdata
London W4

YOU recently ridiculed *New Scientist* for saying no one knows what CP/M stands for, (1984 and all that, December 2), and gave us your own guess, Control Program for Microcomputers. This is an adequate description of the product but hardly plausible as the origin of the abbreviation. After all, we do not call our animal welfare society RS/PCA.

Searching elsewhere for enlightenment I find Rodnay Zaks' book on CP/M gives Control Program for Microprocessors, while the manual for the popular CP/M word processing package Wordstar provides the innovative Command Program Monitor. A recent book surveying CP/M word processing packages, perhaps sensing the problem of the oblique, suggests Control Program/Microprocessor. Unfortunately the documentation provided by the vendor of CP/M, Digital Research, sidesteps the issue with the observation "CP/M is a monitor control program for microcomputer system development".

My own view of what it was that Gary Kildall got tired of writing out in full in 1974, and incidentally the version given in Thom Hogan's book on CP/M is Control Program/Monitor.

Anyway, you can see what *New Scientist* is getting at.

MICHAEL J. STEWART
Abbey Management Services
London SW1

Red letter day for banks

IN the feature "December 1983 – Red Letter Day for Banks" (CW, November 18), I appreciate that Warren Palmer of REI, and author of the article, will be knowledgeable in expounding the virtues of his company's equipment, but I would draw your attention to the comment on column 3, paragraph 5 of the article.

One of the major features of the Burroughs S6000 is its ability to operate as an intelligent *host independent* reader sorter. It can perform such functions as data capture, directed fine sorting, reporting, and online reject re-entry totally independent of any host. It does, however, have the capability to communicate with both Burroughs and IBM mainframe systems via data communication lines.

I would also point out that the comment in paragraph 8 regarding the speed of the Trace 2 system does not mention that although Trace 2 is twice as fast as the S6000, it is also twice the price!

I trust you will set the record straight.

GREG HOWELL
Promotion Manager
Burroughs
Hounslow

To avoid any confusion . . .

YOU recently published an article concerning the activities of a company calling itself International Management Consultants – a company which you refer to as IMC throughout your report. Please notice that my company, IMC London Limited has absolutely no connection with the company referred to in your article.

Our company is a consultancy to the graphic arts industry and, as we have a number of computer based clients, we are most anxious that we should not, in any way, be confused with the company referred to in your article.

IMC London Limited is a wholly owned subsidiary of AMS Holdings NB of Amsterdam, Holland. This company has substantial interests and enjoys a very high reputation amongst its clients and suppliers.

DAVID P. PEBVERS
Managing director
IMC London Limited
Station Road
Marlow
Buckinghamshire.

WORKPLACE

The DP industry has shed its fat

INFORMATION Technology Year was very nearly the year that IBM passed ICL as the major UK computer industry employer.

IBM was the only large UK employer to increase its workforce, which rose from 15,362 to 15,590. ICL on the other hand soared into profitability on the back of 5,000 redundancies as it cut its workforce from 21,114 to 16,000 in the UK, just 410 above IBM's figure.

This trend has been going since 1977 when ICL had 23,000 UK staff, nearly double IBM's 13,814. Since then IBM has tightened its iron grip on the UK computer industry, and confounded the trend by gradually increasing its workforce.

Another US job creator is Intel, which chose its Swindon site for a European expansion. This is expected to add 1,200 jobs to the Intel UK workforce, which stood at 200 when the decision was made in spring 1982.

Other foreign US computer subsidiaries have cut their workforces, with Sperry Univac, Honeywell and Burroughs all shedding an undisclosed amount of fat.

On the periphery of the computer industry, the UK electronics and telecommunications giants all made cuts, often dramatically. At GEC 12,000 jobs were lost, leaving 145,000, while Philips pruned off 5,000 to leave 25,000. Racal dropped 1,335 to 12,800 and Rank Xerox 1,620 to 10,900.

On the data processing side, most of the jobs lost have been for trainees and operators. This has been reflected by a stagnation in trainee salaries, according to the survey company Computer Economics.

In the last six months, average trainee salaries have risen by just £2, according to Peter Stevens, a consultant at the company. This is a considerable cut in real terms.

Stevens also observes that people are sitting longer on their jobs. "The prime requirement is for stability, less for salary. Fewer and fewer people, especially in the ops group, are resigning."

For companies that attempt to exploit the recession and impose greater austerity on their employees, Stevens has a warning. "Some companies are treating their programmers like accounts clerks," he says. "As the market picks up, these people will seek greener pastures."

The contract market has mirrored the permanent job market in shedding the less essential jobs. People with specialist skills like CICS are still in great demand, while the Cobol programmer with just two years' experience is easy to get.

The junior Cobbler can, however, derive comfort from a pick-up in the US contract market during 1982. A big coup in this area came in the spring from VLI, the largest UK contract agency, which sent 60 programmers for a year's contract in Kentucky. About 400 programmers altogether went to the US on contract. Some of these are just plain Cobblers.

IT Year was also very nearly the year that Ada won its immortality from Ansi, the American National Standards Institute. As it is, the completed Ada definition will be submitted to Ansi next week, and a standard will be published in the spring. It will then join Fortran, Cobol, PL/I and a subset of Basic with an Ansi standard.

APL has 200,000 worldwide users, nearly half of which are IBM employees. Its standard is at a slightly earlier stage of development, being considered by the APL user group for submission to ISO, the International Standards Organisation. Adoption by the national standards bodies like Ansi, and BSI, the British Standards Institute, would follow.

IT Year will also be remembered, with a yawn perhaps, for the conception of the Fifth Generation of computers in Japan, where a ten-year plan of investment, research and development was announced.

Quite what this means for the workplace is not clear, but there is unlikely to be much room for operators on the hardware envisaged by the Japanese. But if their software goals are to be achieved, there will be work aplenty for programmers and analysts. Unfortunately the belief that the Japanese software target is beyond their means is not confined to cynics and Americans.

If the Japanese have their way, languages like Fortran and Cobol based on a one-to-one relationship with the central processor will die slowly, to be replaced by logic programming languages such as Prolog. Quite what kind of operating systems will be used to drive the new hardware, the Japanese do not make clear.

The discovery that we are about to enter the Fifth Generation encouraged marketers of existing program generators to call them fourth generation languages. At a conference on generators, many delegates, some inventors of system generators, learned this for the first time.

Call them what you like, IT Year has seen a proliferation of high-level generators, mostly designed to alleviate the tedium and time consumption of commercial Cobol programming. Some of them are like high-level compilers, others use a library of source Cobol code on which to draw according to the application.

May prosperity wait upon firm resolution in 1983.

Alternative solution

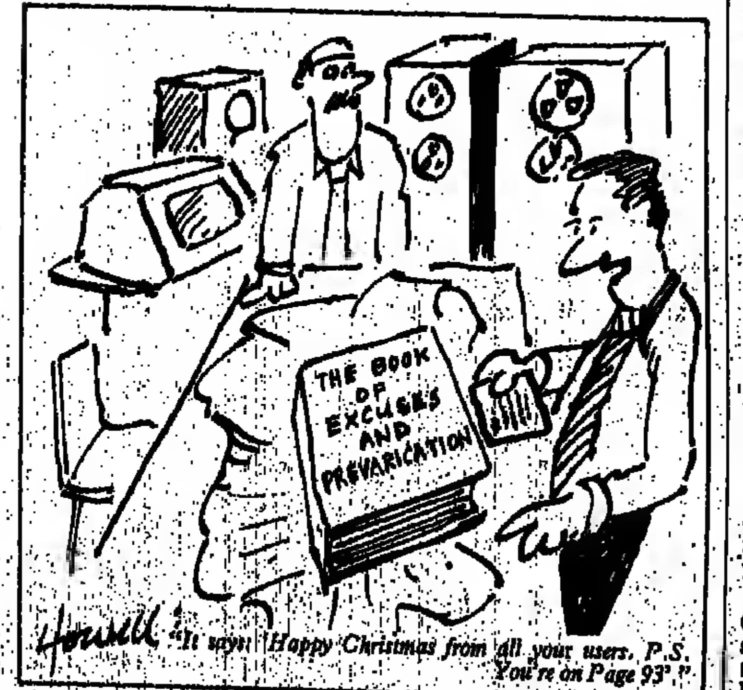
PURE Cobol is not the ideal development language. It is cumbersome and limited in the tools it offers. Cobol code generators and intelligent programs that retrieve existing code from libraries are an attempt to answer this.

But there is still great demand for improvements to Cobol itself. The traditional answer is to write a preprocessor that allows the user to write a de luxe version of Cobol, which is then compiled into standard Cobol recognisable by the machine.

An alternative solution is under development at UMIST, the University of Manchester Institute of Science and Technology, under funding from ICL and SERC to the tune of £115,000 in two years. Code-named Clef, this solution allows a user to build a facilities offered by a preprocessor into the compiler itself.

"You write a little routine for each enhancement," says John Triance, who leads the project.

The problem with preprocessors, Triance explains, is that there are two separate error listings, one from the preprocessor, and one from the standard language compiler.



"It says: Happy Christmas from all your users. P.S. You're on Page 93'."

Sinclair in Hobbitland

AS if the perils of logging in were not quite dire enough already, now you can be eaten by a hideous troll!

It's what happens to you if you fail at the latest game launched by Sinclair based at Tolkien's The Hobbit.

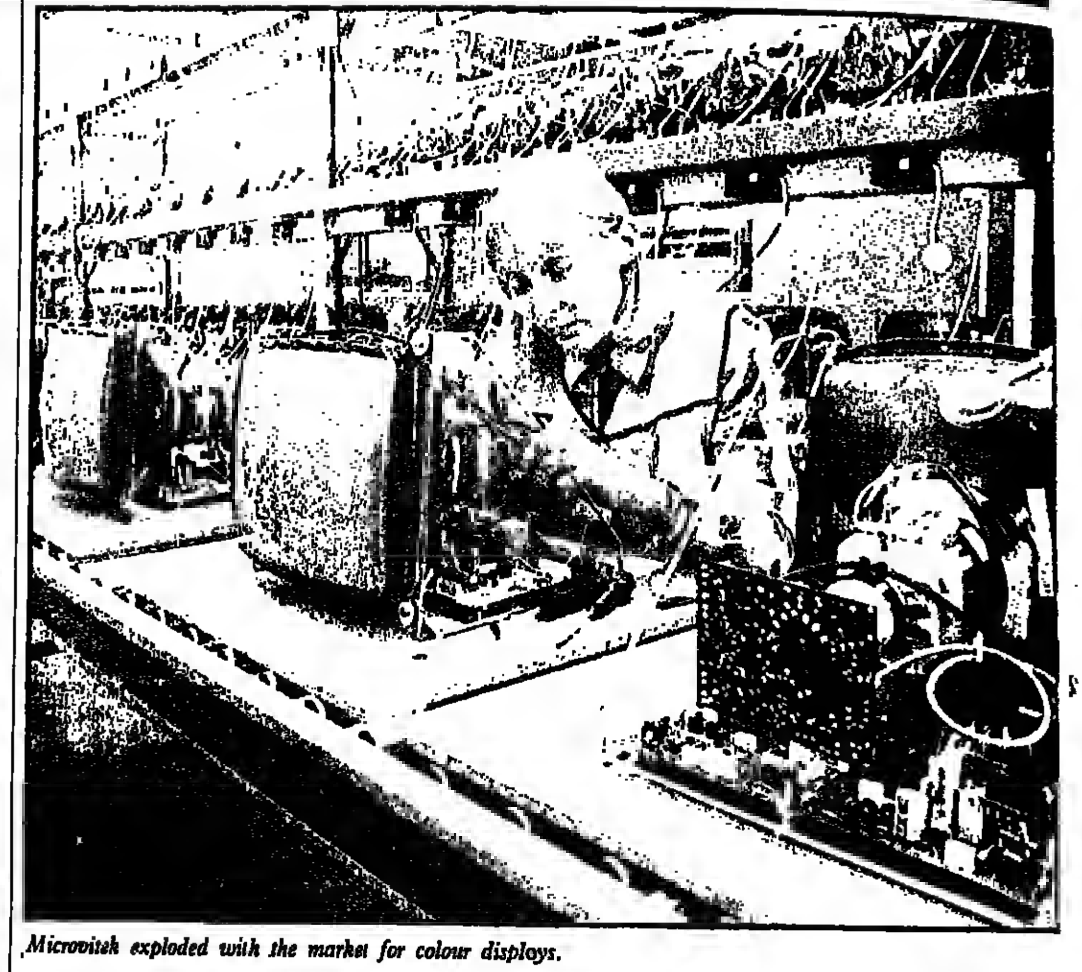
Nigel Searle, of Sinclair, says it is the most powerful computer game yet invented and incorporates some features of artificial intelligence. The Tolkien estate has granted the rights to use the original character and plot and scenes for players to build up their own fantasies and pit their own wits against the dangers of Tolkienland.

The Hobbit was written by three Australians, led by Fred Milgrom, for Melbourne House software. Sinclair is making the game available on the Spectrum and ZX81.

The player takes the role of Bilbo and in the course of a series of advantages "interacts" with the book's other leading personae. The outcome of each encounter, however, depends entirely upon the wits of the incumbent Bilbo.

Through a 48K world of make-believe Bilbo progresses, instructed by a 500 word vocabulary "Inglish" input. This is claimed to be the closest yet of the Queen's own language, in which nearly normal grammar rules can be applied successfully.

Except, of course, that the Queen doesn't normally want to say "attack the troll carefully with the sword" in Inglish or any other language.



Microvitek exploded with the market for colour displays.

Fast-growing Microvitek scoops three industry awards in one year

AN exploding market and a ready pool of skilled redundant labour have been enough to sustain one of the most remarkable growth rates in the UK computer industry.

Well, almost enough; there is also the little matter of a dedicated workforce, most of whom are not shy of a ten or eleven hour day starting at eight.

Microvitek, a colour display manufacturer in Bradford, has this year scooped three industry awards for small businesses by virtue of its ascent to a 114-strong, £2.5 million business in just two full years' trading.

The company was launched in 1979 by managing director Tony Martinez and his brother with £37,500 plus loans from different groups, including a £45,000 grant from the Department of Industry.

The first product was a colour display. It now has 50 derivatives, often sold as graphics displays for leading microcomputers such as the Apple and the Sinclair ZX spectrum, for which special connectors have been designed.

"Our product is the only one approved by the BBC for the Acorn," says assistant managing director Philip Ellison.

Microvitek's immediate continued growth has been ensured by a contract to supply the country's primary schools with 27,000 colour monitors, worth £4.5 million over the next two years. This is part of the DoI's scheme to plant a microcomputer in every school, be it a Research Machines 380Z, a ZX Spectrum or a BBC Model B made by Acorn.

"The school market is important because once there is one computer, people will want more," says Ellison.

Microvitek has just launched a new subsidiary, Micrographics, to research, develop and market graphics applications. The main product under development is the M2000, a character-based graphics terminal. Some time next year, it will give birth to the MT2100, which will be a bit-map model with each pixel, or screen item of information, being addressable.

"This will move us up into the Tektronix market, offering Tektronix-compatible models, "says Julan Boden, Micrographics director.

Boden has a clear ambition: to knock out the VT125 colour terminal made by Digital Equipment. "Ours is a comparable price, but offers better performance," Boden crows.

Boden admits to development problems with the MT2100. There are always problems, he moans. One was in packing all the functions on to one circuit board.

In the end, they gave up, and now the MT2100 will have two boards: one for the dedicated display, and one to provide a processor for local intelligence. This has one advantage in that the processor board can be developed to act as a standalone system.

Microvitek's greatest accolade so far is the outright title in the Industrial Achievement Award for the smaller business, sponsored by Bowmaker and *Accountancy Age* magazine. The award brought a £15,000 cheque, in addition to the £500 already in the bag as regional IAA winner. But most lucrative of all was the £25,000 scoop for coming fourth in the Hill Samuel Anniversary awards for small private companies.

Next year there will be no Hill Samuel Award, and Microvitek will be too big for the IAA, but it will be eligible for the Queen's Industry Awards, for which it was this year too small.

The prize money will be spent partly on new test equipment, partly on improving the dingy staff canteen, and partly on extending a common ownership scheme.

ELLISON . . . Next year, the Queen's Award to Industry?

Workplace is compiled by Philip Hunter and Andrew Thomas.

PUZZLER

IN this week's pouring puzzle, you are given: two 40-litre containers (A and B) filled with liquid; an empty 5-litre container (C); and an empty 4-litre container (D). The problem is to get 2 litres into each of the small containers, using only nine separate pouring operations.

No other receptacles or measuring implements are available. See page 39 for the requisite sequence.

PEOPLE

Computer Weekly squashed on court

A COMPUTER WEEKLY squash team suffered an ignominious 5-0 defeat at the hands of a "stacked" Carter-Parratt five. The event was the kick-off of the 1983 Wright Line squash tournament for computer users.

Carter-Parratt was led by ringer Mike Corby, the ex-amateur national champion who played for the UK for seven years and represented UK in the world championships. Corby, who now runs the Lambs squash club in London, met advertising sales executive Julian Bidlake, and beat him 2-9, 9-3, 10-8, 2-9 in a closely fought match.

Computer Weekly publishing director John Thomas could eke no advantage out of his distinctive blue headband as he fell 3-0 to Carter Parratt marketing director William Eve.

Eve, son of the chairman of Carter-Parratt, is the inspiration behind the challenge to the Computer Weekly team. More than 300 teams will compete in the Wright Line Tournament which begins in January and culminates with the finals in December 1983.

A trophy and prizes worth over £1,000 are at stake, with the winners given the chance to play a singles match against one of the world's top ranked squash players.

Display sales executive for CW Chris Prier salvaged a game in his 3-1 defeat to Carter Parratt's Southern regional director Mike St Croix. But the editorial staff, represented by over indulged editor David Craver (second from left, back row in our picture) found itself too short of breath to counter the touch of finance director Alan Eve. The score was 3-0.

Undaunted, Computer Weekly has entered a team for the Wright Line Tournament, with the promise of serious training over the Christmas holidays.

Julian Bidlake, Chris Prier and David Craver form the team, with John Thomas as reserve.

Computer Weekly's team (left) was hammered 5-0 by the Carter-Parratt five.

Director for CAE centre

THE Computer Aided Engineering Centre recently established at Heriot-Watt University has named James Murray as director. The CAE Centre, on the University campus at Riccarton in Edinburgh, provides services to industry in the form of courses and expertise on the selection, application and integration of CAE systems and techniques.

The centre will be formerly inaugurated tomorrow (January 7) by Kenneth Baker MP. Murray, who joined Heriot-Watt from Ferranti in 1966, is senior lecturer in the Department of Mechanical Engineering, and principal investigator of the Ferranti (Scottish Group) Teaching Company Programme.

■ ICL has appointed Barry Francis to the newly-created post of group public relations manager. The former director of PR consultancy Burson-Marsteller is to coordinate ICL's worldwide PR activities which will include media relations as well as internal and external communications.

■ Tandy (UK) has strengthened its marketing team with the appointment of Vince Moore as the company's first national computer marketing manager. He joined Tandy in 1975 and has held various sales management positions. The position of regional computer marketing manager (South) has been filled by Andrew Tollett, who joined the company in 1980 and was previously manager of the Bishopsgate Tandy Computer Centre.

■ Software Sciences has appointed three regional office executives. Carol Adams joins the London office from Data Type; Jean Pullan, formerly with Univac will work at the Harrogate office; and Sue Woods, who joins the Bristol office, was previously with DRG Business Machines.

■ Jim Spillars has been appointed general manager of Microsoft's consumer products division. He was formerly vice-president of sales with MicroPro International.

■ Michael Pery has joined the board of electronic components company Sifam. He was previously managing director of Alginate Industries.

■ Continuing its programme of expansion, Data Design Techniques has announced two appointments. Kieron Kelly becomes sales and marketing manager. He was previously systems director at Micro Systems Services. Neil Spence, formerly assistant manager at City accountants Touche Ross, has joined DDT to undertake a complete financial re-organisation of the company's affairs, to take into account the projected growth from £2 million to £5 million by 1985.

■ Cossor Electronics has appointed Bill Sykes to the sales department of its service division as its regional manager for the South and South-east of England. He was formerly UK field sales manager for Gelman Sciences.

■ Ron Kirby has been appointed Datapoint Europe's director of marketing operations. He has been with the company for 18 months working on special assignments in Austria and Germany.

■ Case has appointed Mike Pearce to the board as office systems and sales director. He has been with the company since 1973, latterly as general sales manager.

■ STC Electronic Services has appointed Frankie Kelly as product manager for its newly-formed IDC Connector and Product Assembly Group, originally part of the STC Services Connector Group. Kelly has worked for STC for six years. Previous appointments were product specialist, product promoter, and, for the past two years, product marketing controller for IDCs and product assembly unit.

DIARY

JANUARY 10

Voice input and output. BCS East Anglian branch. Norwich City College of Higher and Further Education, Ipswich Road, Norwich. 7.00.

Graphics by Edenwade. IDPM Norfolk branch. Castle Hotel, Castle Meadow, Norwich. 7.30.

The "square wheel" syndrome – recurring problems and pitfalls encountered by a consultant. Speaker Jimmy Macintyre, principal of Pactel. IDPM Scottish branch. Edinburgh University, Student Association, 60 The Pleasance, Edinburgh. 7.30.

JANUARY 11

Automotive micros. BCS Harlow branch. The Norfolk Room, The Saxon Inn, Southern Way, Harlow. 7.30.

Micros – the changing role of DP management. BCS London North-west branch. Bull Hotel, Gerrards Cross. 7.30.

Meeting. BCS Kent branch. Department of Computing, University of Kent, Canterbury. 7.30.

JANUARY 12

Computer Audit. IDPM Birmingham branch. New Imperial Hotel, Temple Street, Birmingham. 7.30.

Book display and microcomputer demonstrations. BCS Bristol branch. St Vincent's Rocks Hotel, Clifton. 7.15.

Computing with the Woolwich. BCS Kingston Branch. Conference Room 1, Kingston Polytechnic, Penrhyn Road, Kingston, Surrey. 7.15.

The communications quagmire. BCS North London branch. West Lodge Hotel, Cockfosters. 8.00.

JANUARY 20

Auditing guidlines. BDP Auditors Association. Little Ship Club, Bell Wharf Lane, London, EC4. 5.30.

Distributed Computing in a local authority. BCS Newcastle branch. Ellison Building, Newcastle Polytechnic. 6.30.

FEBRUARY 2

A view of networking – demands and growth in networks, their size and distance, rewards and perils. IDPM Sussex branch. American Express, 154 Edward Street, Brighton. 7.00.

FEBRUARY 9

Mercury – the alternative to British Telecom. BCS Kingston Branch. Kingston Polytechnic, Kingston-upon-Thames, Surrey.

CONFERENCES

■ FROST and Sullivan is repeating its three-day seminar, Planning and Building Information Support Systems, from February 16. The seminar covers approaches to planning, executing and maintaining an effective level of work performance in the data processing department. Guidelines are provided to match the DP department's goals with the commercial requirements of the company. This is an advanced seminar which will be suitable for those involved in DP or MIS management, responsible for the data processing department. Further details from Olivia Rossiter on 01-486 8377.

The implications of SSP are examined by Cliff Dilloway. Time is now so short that only those well in advance with their planning can hope to have a system working by April. This article discusses what the others might have done and whether they needed to do it.

The system won't do all of your Sick Pay calculations

STATUTORY Sick Pay will be with us in a few short months. As from April 6, 1983 every employee will be required to be paid during sickness absence according to statutory rules.

The immediate thought is that extensive modifications have to be made to payroll systems. Second thoughts show that it is difficult to determine how far a computer can help with the management of sickness absence and the determination of sick pay.

At one extreme there is the routine calculation of average earnings to determine which of the three rates of SSP are applicable for any given sickness absence. Going through eight weeks' pay records to manually write down an employee's earnings, then add them up and divide by eight to arrive at average earnings, is so tedious and prone to clerical inaccuracies that the routine production of an average earnings schedule is a must for every computerised payroll.

The other extreme of a full-blown Statutory Sick Pay system where all record keeping and calculations are done on a computer could well be overkill.

There are a few companies that need the full facilities of a complete Statutory Sick Pay system running on a computer. These companies are those which because of their circumstances find that all the inconveniences of Statutory Sick Pay apply to them.

The computer system is then used to speed up the sickness and absence recording, reporting and calculations rather than intrinsically doing anything that could not be done manually.

In this article we look at the problems that the worst case companies have and the reasons why they are in that situation. From that position it becomes possible to see enough of the implications of Statutory Sick Pay for judgments to be made on how far computer assistance is worthwhile in smaller and less complicated organisations.

It will be seen that in the vast majority of cases the average pay calculation mentioned above is the only modification to computer payroll programs that is immediately necessary, and that any other changes can follow in due course taking advantage of the practical SSP experience that will be gained from April onwards.

The greatest difficulties of SSP arise in those companies which have their workforce dispersed all over the country, with quite small numbers in any one location.

Included in this category are the high street stores, building societies, insurance companies and hotel chains which from the nature of their business have to employ staff locally to service their customers. Typically, these organisations may have 500 or more branches, and some of these will be quite small having a staff of perhaps only two or three.

These large organisations have long since centralised their payrolls on to a large mainframe computer. Each week or month there is a constant flow of payroll data into the computer and the employees are paid according to a well oiled routine.

The payment of SSP can be fairly readily grafted onto those payroll systems, although we come back to the particular difficulties of the calculations later.

It is reasonable to assume that if a payroll system has time to stop payment for an absent employee then it has time to take the necessary steps for SSP payment. It is on that basis that there is an SSP rule that the payment should be made at the same time as the wages for any sick absence days would, otherwise, be paid.

However, the Statutory Sick Pay scheme is about more than money. Administrative procedures have to be followed, the most critical of which is the exclusion notice. In practice not many exclusion notices are likely to be issued but they are important and significant penalties may be imposed for dilatory performance.

The exclusion notice has to be issued to employees who are off sick and who are not legally entitled to SSP. The notice includes a claim form for social security benefits and must be issued quickly to the employee so that they may claim and be paid the appropriate benefit.

If there is any delay the employee may be entitled to supplementary benefit in order to have money on which to live, so the DHSS does not look kindly on employers who are slow in issuing exclusion notices.

There are 10 circumstances in which an employee is excluded from SSP. Some, such as the women on the verge of taking maternity leave or employees in legal custody, are things that would be known about and can be acted on locally, while others are dependent on the type of information that is likely to be held centrally.

In this latter category are individuals over normal retirement age whose average earnings work out to be less than the lower limit for national insurance contributions.

The practical effect is that an employee who is excluded from SSP for one or more of the 10 reasons has to be given an exclusion form within eleven days of falling sick. Not, it should be noted, within eleven days of being absent from work, as in certain respects sickness (incapacity for work) on Saturdays, Sundays or other rest days has implications in SSP matters.

The problem facing the large dispersed national organisation is, firstly, how to divide the responsibilities for SSP between local management and the central organisation, and then, to ensure that the local office can and does meet its responsibilities.

A small, three-person office, for instance, survives by the willingness of the staff to cover for one another in sickness as well as in many other circumstances. It is easy enough for head office to put certain SSP responsibilities on the branch manager but that does not cover the situation when it is the branch manager who is sick.

Doubtless, time and practical experience with SSP will bring this problem into perspective, but for the present it is of real concern and being considered as an area where computer communication might help to ensure that the proper steps are taken.

Having established that the employee is eligible for SSP, we turn to the assessment of the number of days for which an employee is to be paid SSP.

There are seven separate factors to be taken into account in the assessment process. If a fair number of sickness cases are involved there is a good case for the use of a computer and the entry of the information via a VDU.

As we know of no programs yet commercially available for this purpose, we describe the same process using a form of our own devising. The form is displayed in Figure 1 together with an explanation of the entries shown there.

This explanation of what a computer could do to assist in the assessment of SSP is based on the assumption that a screen layout similar to the form shown in Figure 1 is used.

The most useful function of the screen input process would be the validation of dates. A check on the accuracy of dates may be made by the use of redundancy, recording the day of the week as well as the date.

And employee sickness and absence form for recording both the days of the week and dates for SSP purposes is shown in Figure 2.

Any approach to SSP, whether on a form or a screen, has to recognise that it is a weekly process. The week runs from Sunday to Saturday. The rates of SSP are weekly amounts but paid in respect of particular days. There are no monthly rates of SSP and no provision for monthly calculation.

The first factor to be entered in an SSP assessment is the date of the start of the "period of incapacity for work" or PIW as it is called. This information is obtained by asking the employee the question "When did you fall sick?" (See Figure 2).

Assuming that the sickness lasted at least four days, that is, it amounts to a PIW, the first clerical step is to check against the "Date of end of last linked PIW" shown top left in Figure 2 to establish whether this PIW does, in fact, link. A program could carry out this check if the employee's record has been built up to contain the "date of end" information as a by-product of earlier SSP assessments.

If the PIW does link back it becomes possible to establish the "Date of start of (all linked) PIW(s)", which information is not required for assessment but is needed for the calculation of the SSP payment.

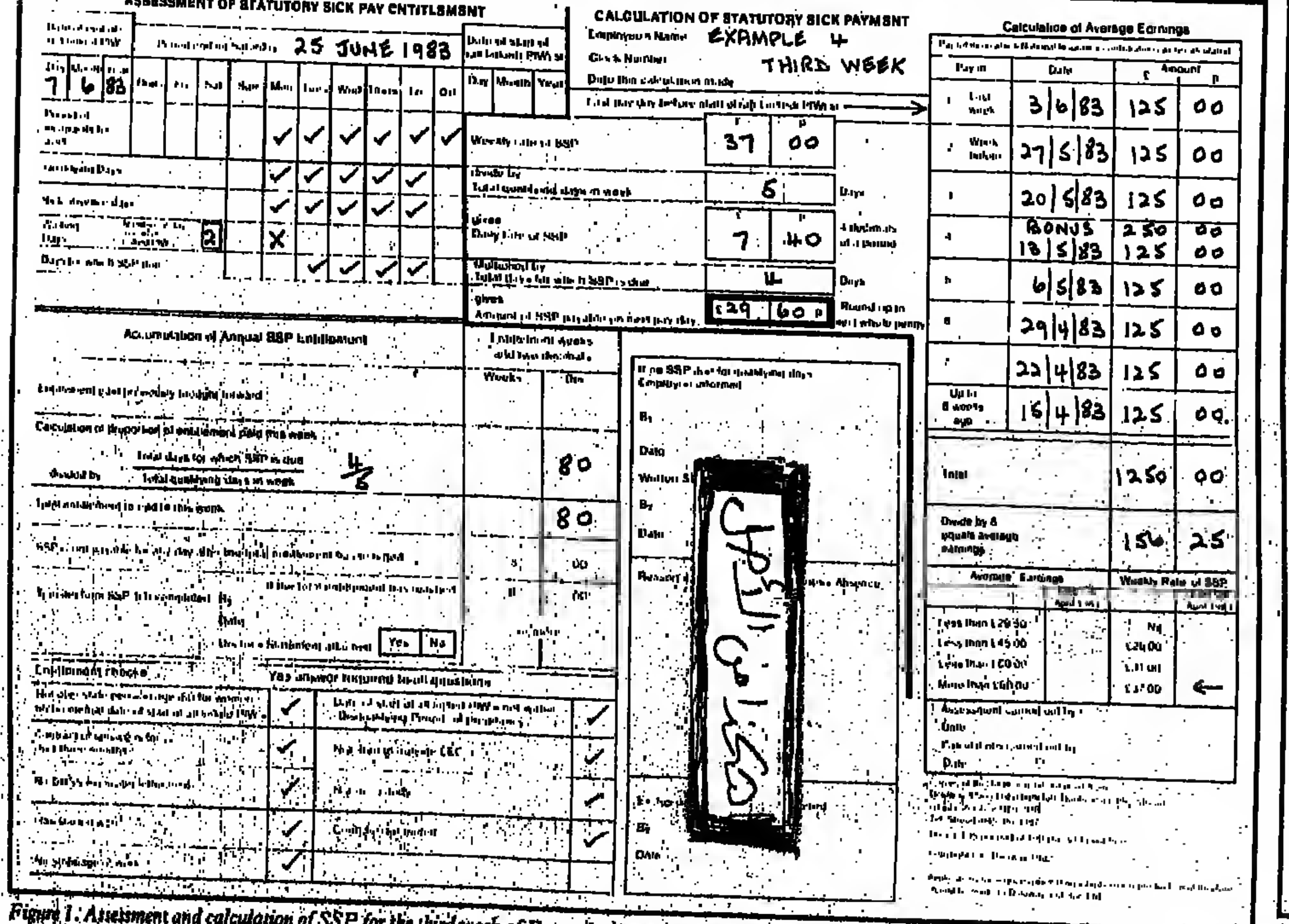
The fourth factor in SSP assessment is the qualifying days in the week. The law of SSP by no means requires it, but for our present explanation we will regard qualifying days as the days on which the employee was expected to work.

In the simplest cases this could be a constant Monday to Friday in the program with provision for an override in the case of exceptions. Those organisations working shifts, and especially those organisations permitting employees to swap shifts, have the greatest difficulty in obtaining ready access to qualifying day information. High street stores employing numbers of part-time workers working variable shifts, or transport organisations where booking on or off is often to the odd minute, are examples of those with the greatest difficulty in establishing what the qualifying days are.

These difficulties are recognised

■ Turn to page 15

The requirements of Statutory Sick Pay are set out in the Employers' Guide published by the DHSS as NI 227. In the interests of readability this article has not defined the requirements as precisely as computer systems demand, so NI 227 should always be consulted and followed.



ASSESSMENT OF STATUTORY SICK PAY ENTITLEMENT

25 JUNE 1983

7 6 83

CALCULATION OF STATUTORY SICK PAYMENT

Employee's Name EXAMPLE 4

Clock Number THIRD WEEK

Weekly rate of SSP	37 00	
divide by Total qualifying days in week	5	Days
gives Daily rate of SSP	7 40	
Multiplied by Total days for which SSP is due	4	Days
gives Amount of SSP payable on next pay day	£29 60 p	Round up to next whole penny

Accumulation of Annual SSP Entitlement

Total days for which SSP is due / divided by Total qualifying days in week 4/5 80

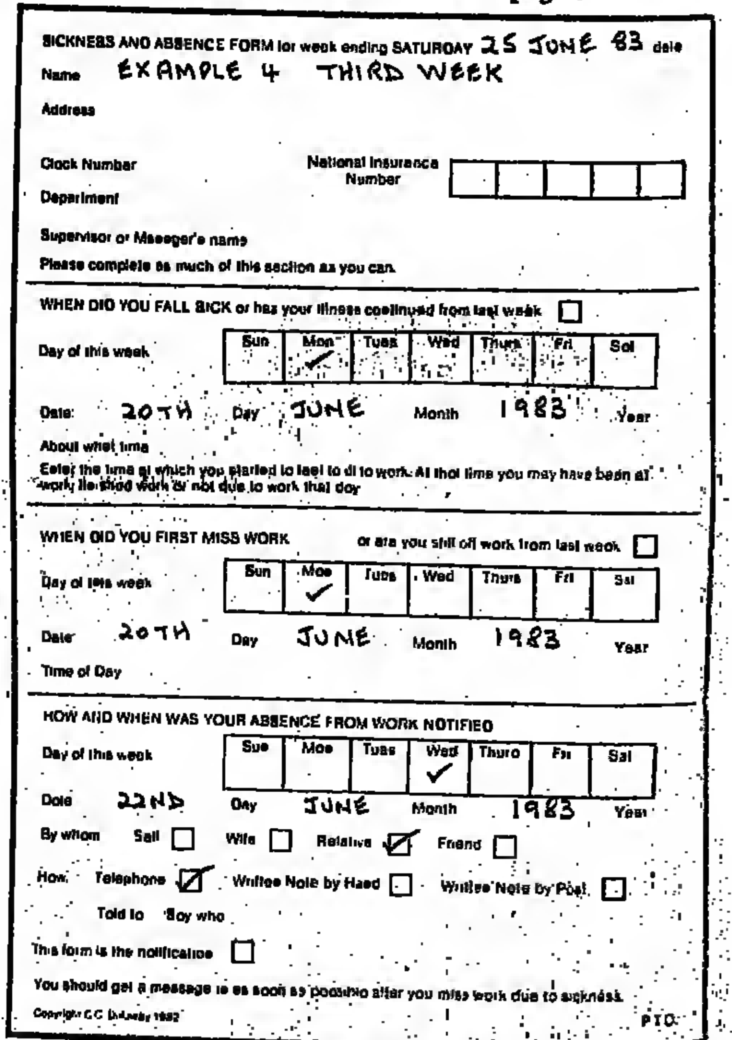
80

Calculation of Average Earnings

Pay in	Date	Amount £	p
1 Last week	3/6/83	125	00
2 Week before	27/5/83	125	00
3	20/5/83	125	00
4	BONUS 13/5/83	250 125	00 00
5	6/5/83	125	00
6	29/4/83	125	00
7	22/4/83	125	00
Up to 8 weeks ago	15/4/83	125	00
Total		1250	00
Divide by 8 equals average earnings		156	25

Average Earnings	Weekly Rate of SSP
Less than £29.50	Nil
Less than £45.00	£24.00
Less than £60.00	£31.00
More than £60.00	£37.00 ←

Figure 1: Assessment and calculation of SSP for the third week of Example 4 on page 55 of the Employer's Guide to SSP (NI227).



SICKNESS AND ABSENCE FORM for week ending SATURDAY 25 JUNE 83 date

Name EXAMPLE 4 THIRD WEEK

Address

Clock Number

National Insurance Number ☐☐☐☐☐

Department

Supervisor or Manager's name

Please complete as much of this section as you can.

WHEN DID YOU FALL SICK or has your illness continued from last week ☐

	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Day of this week		✓					

Date 20TH Day JUNE Month 1983 Year

About what time

Enter the time at which you started to feel to ill to work. At that time you may have been at work itself and work or not due to work that day

WHEN DID YOU FIRST MISS WORK or are you still off work from last week ☐

	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Day of this week		✓					

Date 20TH Day JUNE Month 1983 Year

Time of Day

HOW AND WHEN WAS YOUR ABSENCE FROM WORK NOTIFIED

	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Day of this week				✓			

Date 22ND Day JUNE Month 1983 Year

By whom Self ☐ Wife ☐ Relative ☑ Friend ☐

How Telephone ☑ Written Note by Hand ☐ Written Note by Post ☐

Told to Say who

This form is the notification ☐

You should get a message to us as soon as possible after you miss work due to sickness.

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PTO

Figure 2. Absence report showing the information provided by the daughter of Example 4 after he was admitted to hospital on June 20, 1983.

'Worst case' firm has its own scheme

■ From page 14

by the DHSS, and so for SSP purposes it is possible for an employer to agree with his employees a pattern of qualifying days other than those days when the employee is expected to work. This is all very well, but it requires employees to notify themselves as sick absent on qualifying days when they were not going to go to work anyway.

This type of arrangement is quite hard to get across to employees and may well be resented as prying, even though the employee then stands to be paid SSP for that qualifying day. In the worst case condition, the provision of a facility that brings an individual employee's qualifying days to the screen is well-nigh essential if SSP is going to be efficiently processed.

As sick absence has a relatively low incidence the pre-recording of shift patterns for all employees for SSP purposes can hardly be justified. On the other hand, if the payroll system already holds this information, then a screen-based system to bring the information up for SSP assessment could well be attractive.

There will be a few marginal cases where the additional use of shift pattern information for SSP purposes is enough to justify holding the data for payroll purposes when it has not been done in the past.

The fifth factor in SSP assessment is the days when the employee was absent from work. Subject to what is said below, SSP is payable for qualifying days on which the employee was too sick to work and did not, in fact, do any work.

This odd arrangement of words means that an employee who becomes sick after starting work (or has an accident) does not receive SSP for that day.

The sixth factor in SSP assessment is the disallowance of the first three (waiting) days for SSP purposes. This is a practical rule designed to follow sickness benefit practice and avoid the administrative consequences of having to deal with single or double days of sickness.

As with all rules, some attempt has been made at fairness. If the employee's previous incapacity (not absence) was not more than a fortnight away the PIWs are said to link — waiting days do not have to be served more than once in a series of linked PIWs.

It was earlier suggested that the fact of linking be established on the input of the data for the first factor, and this is where the fact is used to either allow or disallow the three waiting days for SSP purposes.

The seventh factor is the number of waiting days in earlier linked PIWs. It is quite possible that two waiting days have been served in an earlier linked PIW (see Figure 1) and so there is still one waiting day to take into account in this SSP assessment.

The extent to which a computer is useful in the SSP assessment process depends on an individual company's procedures and the incidence of "worst case" circumstances.

Volume is another consideration. An employer with only half a dozen employees sick at any one time, all of whom are five-day workers, will see little value in computer assistance for a low volume job.

However it is arrived at, the output from the assessment process consists of three items of information:

1. The number of days' SSP to be paid in a week.
2. The number of qualifying days in the week.
3. The date of the start of (all linked) PIW(s).

This is the data required by the SSP calculation process that arrives at the amount of Statutory Sick Pay and which we now describe.

It is necessary to work backwards from the date of the start of (all linked) PIW(s) to arrive at the average earnings for the employee. These are weekly average earnings based on eight weeks' or two months' pay for national insurance contribution purposes.

The rules are straightforward enough and, dependent on the level of the average earnings, SSP is paid at one of three weekly rates. The rates to be used from April 1983 are expected to be published at about the time that this article appears, and they will replace those used in Figure 1.

The SSP calculation itself is simply to divide the weekly rate of SSP by the number of qualifying days in a week and multiply by the number of SSP days. The number of possible calculations is quite small, and the DHSS will be publishing a table for the clerical user so that the payment to be made in any given instance can be read off.

The SSP calculation is no more complex than any of the up to gross calculations that are expected from a computer payroll, so it is reasonable to expect that the facility be provided in most systems.

If the payroll programs are maintaining the average earnings on a weekly basis, then it is reasonable to ask that they also retain the averages for the last few weeks, so that when a belated advice of an SSP payment arrives the average earnings are still available for the calculation to be carried out.

Once an average earnings figure has been used, its band rating needs to be retained because it applies through all future linked PIWs, even when at tax year end the band limits change.

In the new tax year, and to the day, the new weekly rates of SSP come into effect, but that is not a facility that is required before April 1984.

Statutory Sick Pay is subject to national insurance contributions and on that basis has to be included when calculating average earnings on a later date.

There is a limit on entitlement to SSP in any tax year of eight weeks from any one employer. If the three items of data mentioned above are submitted to the SSP calculation process then the payroll programs can keep track of the consumption of the entitlement.

An accumulation has to be maintained in weeks to two decimal places of the result of dividing the total qualifying days in the week into the total days for which SSP is due. An example of this accumulation appears centre left on Figure 1.

In theory two separate accumulations of this kind are required; one that starts afresh each tax year, and one for periods of sickness that extend over tax year end, as they too are subject to an independent eight-week entitlement limit. A respectable program would check the entitlement limit before calculating the amount of the SSP payment, since that may need to be restricted.

After exhaustion of an individual's SSP entitlement in a year he may become entitled to social security benefits, and to ease the conversion step an employer is required to issue the employee with a transfer form after six weeks' entitlement has been established. A warning to issue the transfer form should be provided by a program maintaining a check on the entitlement limit.

A "worst case" company would be one with its own sick pay scheme. Invariably this will operate on a different basis from SSP. For instance, a company scheme might not pay for the first week of sickness and might have different linking rules.

Or a company scheme might be based on the number of hours of work lost, so would pay more for long days than for short days. SSP is paid per day irrespective of the number of hours' work lost.

These complications would not be too bad if both the company scheme payments and SSP had to be paid, but this is not so. SSP must be offset against any other payment made by the employer in respect of the same day. The other payment may be a company sick scheme, holiday pay or a salary that is paid anyway, sick or not.

There are several complications that arise from this situation. For any given day an employee has to be paid the higher amount, of SSP or whatever other payment is to be made.

Even if it is clear that the other payment will be much higher than SSP, the SSP calculation still has to be made. There are two reasons for this: firstly, a DHSS inspector may ask to see evidence of what the SSP would be and that it has been paid; more importantly, the SSP amounts may be recovered from the government.

The process of recovery is by deduction from the monthly cheque sent to the Collector of Taxes for national insurance contributions and PAYE. For this purpose the amount of SSP paid or offset has to be accumulated by the payroll programs although the recovery itself is the result of accounting action.

The amount of SSP, whether offset or not, should in our view be shown on the payslip. It also appears wise to show the eight-week average earnings on the payslip each week and to identify the NIable earnings on which it is based. Employees have certain rights to require information from their employees in respect of SSP and it is usually easier to provide information as a matter of routine for everybody than to meet ad hoc requests from those who are doubtful, worried or just being awkward.

A complete SSP system would not stop with the payment of SSP to the employee. Certain records have to be retained and there is a requirement that the employer operates a system to control sickness absence.

There is little point in retaining detailed information in a computer outside a sickness absence control system.

Every employee absent from work is a potential claim for payment of SSP. The claim is established by the employee notifying, as it is called, according to the employer's rules his sickness as the reason for absence.

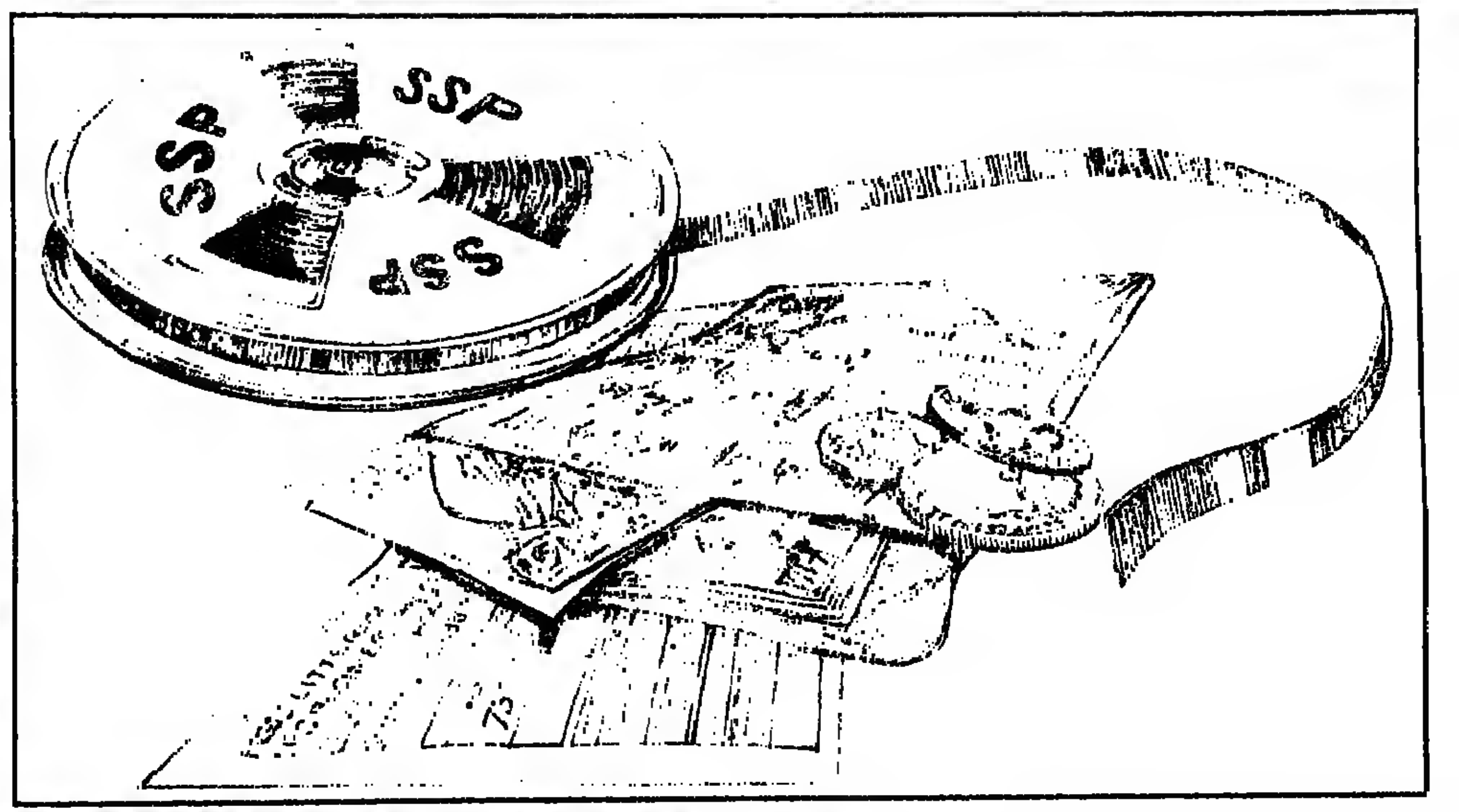
Subsequently, the employee has to establish his sickness, usually by self-certification in the first instance.

A responsible employer will endeavour to establish the reason for every absence and, as many employers have discovered, just taking an interest has a surprisingly beneficial effect. This will snowball as the computer comes to provide the right information about employees for them to be looked after properly.

While SSP is far from being a non-event, in its final form it should settle down as one of the minor burdens of business life. Like the introduction of VAT, Statutory Sick Pay is of worry and concern to understand and get working but the routine operation should not impose too much strain on most companies.

For these reasons the bonanza that many payroll package companies were expecting from SSP will be of silver rather than gold. There will be a long-term influence towards personnel systems building on the SSP control systems that are required, but this will be a slow process in today's economic circumstances.

Cliff Dilloway is a consultant who regularly contributes to Computer Weekly on payroll matters. His activities range from commercial applications packages to the arbitration of computer disputes.



Bowes Egan gives a warning against complacency to computer bureau users

You may have to do it yourself

WAGES and computer specialists have, in fairly casual and quite understandable fashion, tended to regard statutory sick pay as simply some kind of pay which could be easily identified through direct reference to the law and regulations and taking into account information already on file.

So, they have assumed that it was going to be a relatively simple matter to accommodate SSP within existing payroll systems.

Unfortunately, many such executives have given advice to their customers or their bureaux employees along such unconsidered lines.

The view that SSP could be handled by present computer systems without any serious reconstruction can have a limited validity only if these payroll arrangements contribute nothing to the handling of SSP beyond receiving and processing details of fully calculated statutory amounts due to identified individuals, and steer well clear of any handling of SSP entitlement evaluation or calculation.

One bureau manager proudly declared that his bureau was not going to make any additional charge for handling SSP. Furthermore, it was not going to add to management burdens. It would simply require an identification of employees and relevant SSP amounts which could be fed into the existing system.

Translated into plain terms, this elegant formula really means that this bureau is not going to provide any real SSP assistance to its customers.

Bluntly, the bureau has made some evaluation of SSP data requirements and, as one result, it wishes to push the handling of SSP back to its customers. It hopes that these will be content to continue using the bureau facilities which will be available with only slight adjustment to accommodate a new income source.

> **'Sometimes analysts react to SSP in pretty hysterical fashion'**

A similar attitude is taken by some analysts and executives of computer departments within employing organisations and by similar executives of computer subsidiaries owned by large groups. Having looked, often in a rather casual way, at management data requirements, they indicate that they are unable or unwilling to provide practical assistance.

On one level this attitude is understandable enough. People who are familiar with payroll tend to assume that SSP will involve relatively uncomplicated adjustments of minor kinds. On further scrutiny, SSP turns out to be far more complex than the rules on NI contributions or PAYE. The comparative simplicity of these earlier rules is shown by the great variety of relatively unsophisticated payroll programs that are used at present to provide quite adequate wages services to employers.

Likewise, those who have been involved in development of relatively simple wages arrangements glance at the minimum SSP data requirements, and see that there are considerable and unexpected complications and that satisfactory computer handling will require a new degree of sophistication which may not be within their competence or available within their organisations.

So they give up, and push the burdens back to the customer or to the wages department. They advise that SSP should be handled manually, declaring that computer handling is inappropriate.

Sometimes analysts, who are familiar with payroll arrangements, react to SSP in a pretty hysterical fashion, asserting that legal and industrial elements make it an inappropriate subject for their attention.

Of course SSP does involve some elements which are not readily susceptible to computer handling. No competent person would suggest that a machine can manage personnel or should make judgements required by law. The central point is that well marshalled data collection arrangements and well structured management systems must be established to introduce SSP and to ensure smooth operation.

Some of the SSP obligations imposed on employers are clearly suitable for handling on computers: for example, calculations to discover whether an employee comes above the LEL, or to identify his weekly rate of benefit, must be based upon a history of payments almost always held on computer.

Computer handling structures can be of very great practical assistance in dealing with SSP if these are designed against some background knowledge of management arrangements and requirements.

Bowes Egan is a director of Industrial Relations Briefing, a research organisation providing information services on employment-related laws.

All is revealed in the story of the Hut Six team

The Hut Six Story: Breaking the Enigma Codes. Gordon Welchman. Allen Lane. £8.95.

SECRECY surrounding the breaking of the German codes during World War II has been such that details were not released to the public until 1974, when F. W. Winterbotham's book called The Ultra Secret was published. Even then, the exact mathematical methods used to crack the Enigma machines were not described, and it has been left to Gordon Welchman to fill the gap.

Welchman, a Cambridge mathematics graduate, was assigned to an organisation set up at British wartime Government Communications Headquarters at Bletchley Park in Buckinghamshire. He led the group of code-breakers who became known as Hut Six, from their accommodation. This book is an account of their tireless efforts and inspired achievements.

Hut Six got off to a head start at the outbreak of war through the gift of an exact replica of the German Enigma machine from Poland. This was like a typewriter in appearance but with between three and five movable wheels, each with 26 positions and different internal wiring systems, to conduct an electric current along varying paths to interconnect pairs of letters. To further complicate the process, the starting positions of each ring hsd to be known.

Welchman quickly discovered the pattern of German messages, and the formation of the keys transmitted within each message, but then had to set about narrowing down the field of 200 trillion possible cross-pluggings every day.

This is a fascinating book and the reader cannot help but feel involved.

Maggie McLening

Ibbett helped design the MU5 which influenced many other designs.

Guide to major architectures

The Architect of High Performance Computers. Roland N. Ibbett. MacMillan. £6.95.

OCCASIONALLY a textbook excels and becomes something more than just another hurdle for the reading oppressed student to get over. This book, one in a series being edited by Professor Frank Sumner, achieves that distinction.

It offers the intelligent and interested computer person a clear and readable guide to the architectures underpinning most of the world's computer systems today.

This includes "working appreciations" of the IBM 360 and 370 series, the CDC Cyber machines, the DEC PDP range, and a series of research machines, including Manchester University's MU5.

Ibbett, who teaches at Manchester, helped to design the MU5, elements of which have had a major effect on portions of other architectures, including ICL's 2900 series.

The kernel of the book is its explanation of the downward migratory path of computer architectures. Today's mainframe is tomorrow's micro, and the real potential for widespread computerisation lies in the appearance, inside the little machines, of the design strategies which make the big machines work.

The paucity of implemented architectures is such that a book as well and neatly presented as Ibbett's may be the spark needed to get more innovative architectures at least into the laboratory design stage of new machines.

Kevin Cahill

Casebook exercises

Case Exercises In Data Processing. Brian Aspinall, Fred Caswell, Peter Haine. McGraw-Hill Book Company (UK) Ltd, 1982. £3.50.

STUDENTS on courses such as the DP option in BEC National Level Business Studies may benefit from this small but brightly-presented collection of practical examples.

The authors, who are all from the Department of Computer Science at Lanchester Polytechnic in Coventry, claim to have tested out some of their material in the classroom and "debugged" it there.

The cases chosen have the ring of experience about them and serve to illustrate some important points and to lay out some interesting scenarios.

How can you set up a system so that people can borrow books from one branch library and return them to another, for example?

The exercises are technical enough to be challenging to further education students but also human enough to sound real. There's plenty of variety here and amusement with it.

George Black

A readable and useful introduction to DBMS

Database Management System Anatomy. J. A. Larson, Lexington Books. 183 pages.

THIS BOOK is concerned with the design and construction of database management systems. In many ways its approach is novel, because it attempts to integrate and use ideas drawn from compiler theory, operating systems, software engineering and data structures.

The author assumes that the reader has no previous knowledge of databases and so, in principle, this book would make a useful introductory text. Each of its 10 chapters concludes with a concise summary and is supported by a question section; there is a selective bibliography at the end of the book.

One of the most useful features of the book is the description of the BARE (Basic Attributes Relationships and Entities) data model described in chapters 2 and 3. This model is introduced as a teaching tool to illustrate those basic database concepts that are common to the majority of data models.

Subsequent sections of the book are of a more general nature and discuss most of the conventional topics covered by other texts.

Those looking for an introductory text covering the principles of database management would find this book both readable and appealing. However, readers who are already experienced in this field would not find any significantly new material, although they would find it an enjoyable book to read.

Philip Barker

Buzz through the mail

The Electronic Mail Handbook. Stephen Connell and Ian Galbraith. Kogan Page. £11.95.

IF A buzzword can be defined as a piece of current jargon which you can use without really understanding, then Connell and Galbraith help to translate a few of those buzzwords into something pretty close to plain English.

Their survey is intended as a practical guide to help managers cope with the office automation revolution — which conservative British businessmen may find harder to handle than their counterparts abroad. However, the layman can learn almost as much from the discussion as the executive.

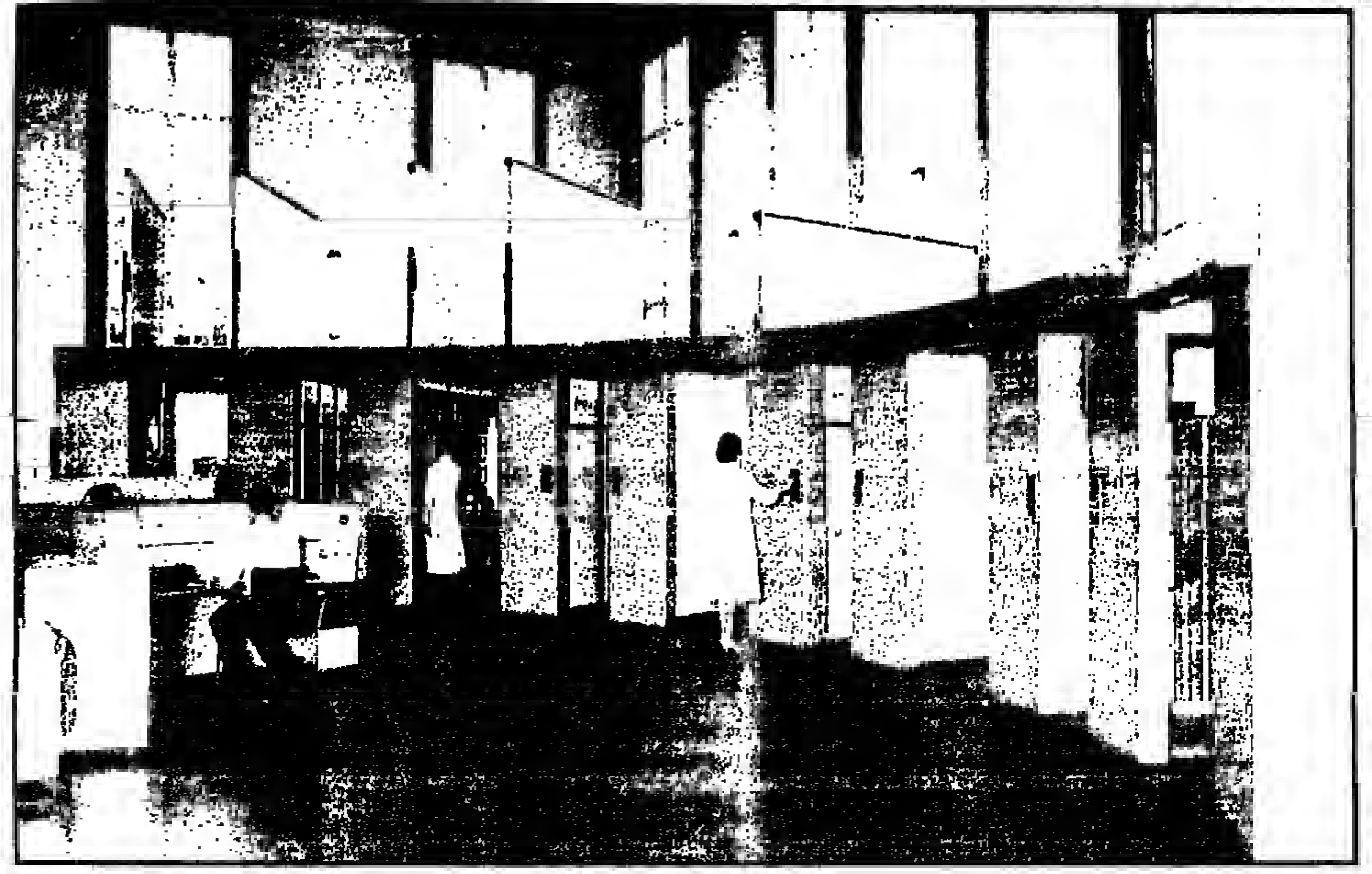
The authors show how the various fields of electronic mail development converge round the micro-plus-printer configuration. Facsimile and text terminals are clearly explained, as well as concepts like packet-switching and hybrid networks, ink-jet printers and light-emitting diodes. One significant point which emerges is that, for larger firms going in for word processors, it is probably worth a little extra to have text-only electronic mail as well.

Connell, of Communications Studies and Planning, and Galbraith, of Mackintosh Consultants, did a big research project into various systems and are therefore able to talk authoritatively about their advantages and disadvantages.

Unfortunately the book is too expensive to gain more than a specialist readership.

GB

"I'd like to see him do that with the electronic mail system!"



The digital computer Ace, designed and built by CME Division, was used in Mathematics Division to develop saphisticated mathematical techniques for solving prablems arising in the ather divisions of the National Physical Laboratory.

Speech recognition work at the NPL uses a phonetically-based approach to cope with the variability of speakers and acoustic environments. The work is now being exploited through a speech recognition club.

NPL takes credit for a 3-prong war on crime

There has been a shift in emphasis to computers among the back-room boys at Teddington . . . George Black reports on the latest technology

MOST people's image of the National Physical Laboratory at Teddington, Middlesex, is of Einstein splitting atoms in a small back room. But today one-tenth of its efforts is concentrated on computers.

The shift in emphasis has not been sudden. The mathematics division, established in 1945, was briefed to build an Automatic 1,000 times faster than any electro-mechancial device and 100,000 times faster than the manual equivalent.

So in the Fifties the first computer service to be offered to British industry came from the Ace. And among its users was the present director Dr Paul Dean.

The technology was taken a step further to produce, in association with English Electric, the Deuce computer. By the middle Sixties attention had moved on to communication systems.

The first local packet-switching network was running at NPL by the end of the Sixties. And this year a three-node replacement network has been commissioned, using GEC 4000 series computers and CCITT Recommendation X25 protocols.

The Man-Computer Interaction Unit, led by the late Chris Evans, in the Seventies designed the medical interviewing system for Ables Informatics called Mickie. And it was the Mickie concept which was recently extended to produce Edutext, a system for non-computing techers to develop lessons through a VDU. A micro version will sell under the name of Microtext. The marketers will be BBC Publications, Commodore, Acornsoft and Mantissa.

The software continually assesses a student's skills and gears the teaching material accordingly.

The lab's main function is as the country's headquarters for the setting of standards for industry and commerce as well as for health and safety purposes. Two-thirds of its resources go on standards work. The remainder goes towards developing technology — information technology ends up getting a tenth share of the cake.

NPL played a big part in the development not only of packet-switched networks but of office information systems and much of the mathematics on which computers depend. There is also a consultancy and research service provided for industrial and business customers.

A high-speed data transfer ring, capable of connecting up to 256 computers, has just been designed and now operates at a rate of 64 million bits per second. The ring solves the problems of communication bottlenecks between computers. There is a guaranteed maximum delay of four milliseconds for any data interaction.

Modular software which takes advantage of multiple processors is a connected field that the lab has been exploring. Collaboration with the BP subsidiary Scicon has spawned a multi-processor computer from cheap large-scale integration (LSI) components. The result has been Demos, a system which can now be exploited commercially by Scicon.

A pilot ring constructed at NPL supports a Demos research machine that comprises three Ferranti Argus 700F computers. The knowledge gained from this project is to be used to extend the idea to connecting physically distributed systems, producing a high performance system which is robust, reliable and cheap.

A three-prong attack on crime is under way in another section of the institute. Credit cards with built-in microprocessors and signature validators may soon make things much more difficult for frauds and forgers. The technique for checking signatures is at least 97% foolproof, according to principal scientist Ed Brocklehurst.

"We've been taking five sample signatures from people and from those we use the computer to build up a profile," he explained. "It turns out to be right 98% of the time when it accepts a signature as valid and 97% of the time when it rejects it as invalid. It may not yet be perfect, but it should certainly be good enough to frighten off most forgers."

He pointed out that the typical pickpocket, who goes off down the high street to see how much hi-fi gear he can accumulate in a few hours, does not usually take much time to practise writing a signature and is therefore likely to be caught pretty quickly.

"As a back-of-the-envelope calculation, I would say that one of these devices would pay for itself in about four months."

Barclays sponsored the investigation work and it seems likely that most banks will adopt this or similar equipment soon. The technique involves only a cheap microprocessor and solves the more difficult problem of checking a completed piece of writing, without the additional help provided by monitoring the writing during its performance.

Simultaneously the microprocessor credit card — "the smart card", already under trial in the US — which data security group chief Donald Davies predicts will replace the conventional card within five years, is being pioneered.

"The intelligent card will certainly be a big step forward, but I don't think it will be the end of the road, by a long way," said Davies.

Electronic memory cards will be used to check a customer's personal identity number, as well as to hold a monthly spending limit and to record details of all transactions.

A tokens and transactions control consortium has been set up to represent parties interested in developing the technology. The consortium includes Philips, Plessey, Chubb, Ferranti, ICL, the Post Office and National Giro, GEC and ICL.

At a recent NPL Open Day, Information Technology Minister Kenneth Baker warned that the credit card system was still wide open to abuse and he praised the NPL's advances in combating fraud.

Work on cryptographic techniques is also in progress. Risk areas have been highlighted as messages in transit and data on removeable media. User identity checks and messages authentication are part of a programme of research which scientists hope to use to tackle the growing threat of computer crime.

Advances are being made in the area of speech recognition by machines.

Brian Pay explained: "At the moment we are at the stage where a computer can understand a person if it knows who he is and the context of the statement and a small number of words is used separately. What we are working towards is a situation where recognition is independent of the individual voice and the context. The machine must be made to discount the ums and ahs and pauses and to pick up whole sentences without confusion."

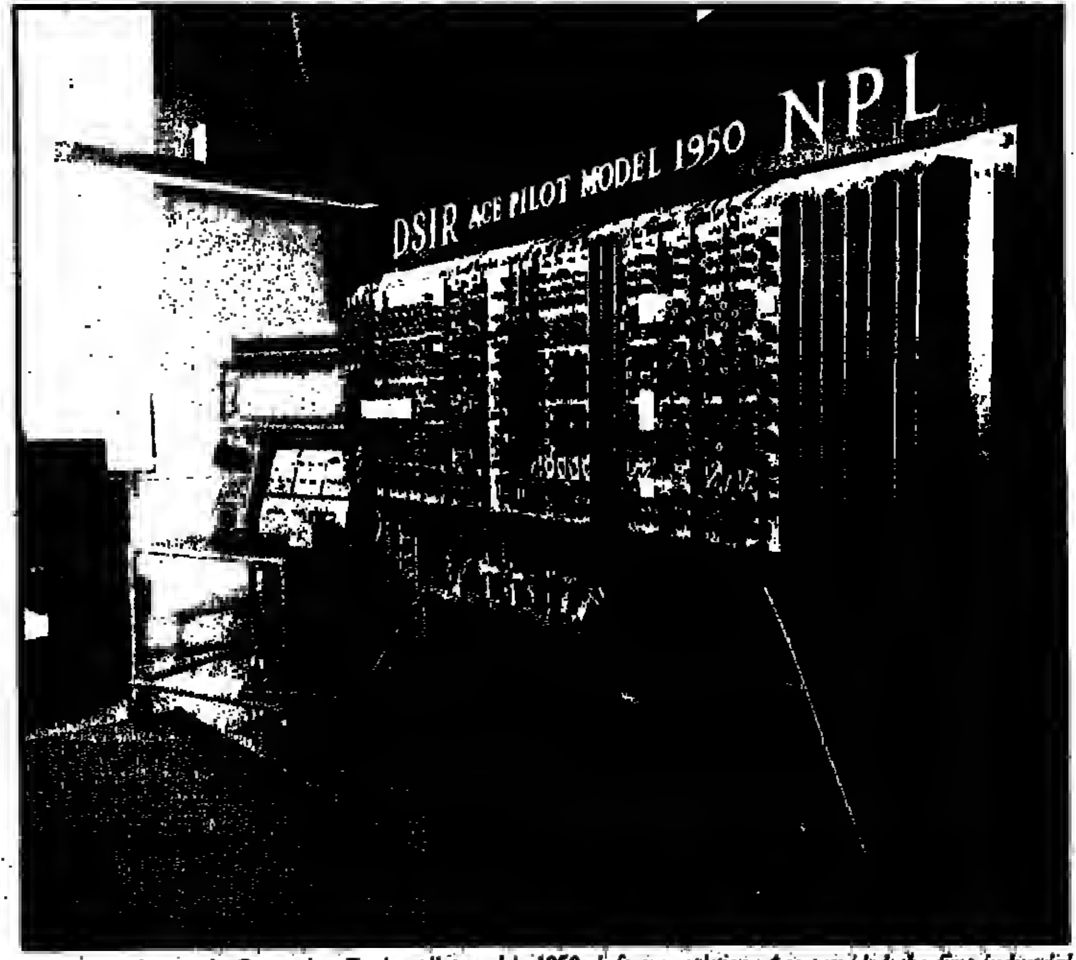
Last year a club of nine commercially interested parties was formed.

The choice of a language is always a hotly argued topic in data processing circles and the NPL is closely involved in this debate. It is helping the British Standards Institution to set up a service to validate Pascal compilers.

At the heart of this project has been Brian Wichman. And at the same time his colleague John Barnes has published two reports on Ada after research supported by the Industry Department.

Co-operation with the BSI has brought about a new standard to simplify programming and clarify data definitions — the so-called syntactic meta-language BS6154. And NPL hopes to contribute to an assessment centre for implementing protocols and standards for Open Systems Interconnection (OSI).

■ Commercial companies are now offered use of ICL's Distributed Array Processor on a bureau basis by the NPL. It has linked a DAP with 4,096 processing elements to its ICL 2972 mainframe. This service complements a similar one offered to academics by Queen Mary College London, since 1980.



The NPL Automatic Computing Engine pilot model, 1950, before completion. Ace provided the first industrial computing service. It can now be seen at the Science Museum in London.

> "We are at the stage where a computer can understand a person if it knows who he is and the context of the statement and a small number of words is used separately. What we are working towards is a situation where recognition is independent of the individual voice and the context. The machine must also be made to discount the ums and ahs and pauses and to pick up whole sentences without confusion"

DEC offers mainframe users shared resources

DIGITAL Equipment has introduced an advanced system interconnect structure that the company claims offers users reduced hardware and software costs, more reliable databases and higher data integrity and system availability.

First implementation of the new interconnect structure is based on DECSystem-20 mainframes with PDP-11, Vax and personal computers to follow. The structure provides customers with fully shared processor and storage resources through means of a high-speed bus and shared mass storage controllers.

Each user will be able to access programs and data transparently from a terminal without the delays and file duplication of conventional networks. The structure will provide users with remote access through DECnet and local area networking via Ethernet.

Up to four of the DECSystem-20 mainframes can be linked in a single configuration. Mainframe systems based on the structure will be targeted to the engineering, scientific, data services, commercial, and education markets. Configuration prices range from £609,000 to £2.38 million for a full four-processor configuration, with first deliveries scheduled for autumn 1983.

According to Lynne Gillon, large computer group marketing manager, the interconnect structure was developed to allow system planners a high degree of flexibility in building and expanding computer resources: "With shared resources, a system manager can expand data storage and processing capacity only as required to meet increased demands and in a modular fashion.

"Without the new structure the manager would have to install additional independent systems, resulting in duplicated databases and greater demand for storage. By giving users access to shared computers and mass storage resources, user productivity improves and the reliability and currency of data files are increased."

New hardware components for the DECSystem-20 implementation include the Computer Interconnect (CI) bus, HSC50 intelligent mass storage server and TA78 storage subsystem. The HSC50 will support up to 24 storage peripherals; it currently supports the TA78 tape drive and the RA60 and RA81 discs.

Up to four DECSystem 2040s or 2060s can be linked in any combination to the bus. Software consists of the new Common File System-20 (CFS-20) multi-processing package that runs under the TOPS-20 operating system. The operating system will be extended to Phase IV of DECnet. When released, DECnet-20 Phase IV will enable individual mainframe systems to be linked via Ethernet to other systems and devices.

The CI bus adapter for the DECsystem-20 processor is priced at £13,650, with bus cable prices variable according to length. The HSC50 is priced at £22,750, with each four-drive data channel connector priced at £4,970. The TA78 tape subsystem is priced at £36,400, with add-on drives at £17,850. CFS-20 costs £59,500. Both hardware and software are scheduled to be available in autumn 1983.

Digital Equipment (CW), Digital Park, PO Box 110, Reading RG2 OTR. Tel: (0734) 868711.

Quarter-inch digital tape cartridge manufacturing is now online at DEI.

DEI begins digital tape production

DATA Electronics Inc. has now begun production of quarter-inch Ansi/Ecma digital tape cartridges in its new facility in San Diego, California. This follows shortly after the announcements of the acquisition of a manufacturing licence from 3M Company for the cartridges, and also the acquisition of the Verbatim production equipment.

The company is currently producing 500 cartridges per shift. Within six months, additional automated equipment will be installed that will allow the company to get up to 2,000 cartridges per shift, according to vice-president Sam Thompson. Initial production will be three lines of 1,600 bit/inch cartridges, as well as limited production of the recently announced 6,400 bit/inch certified cartridge.

Thompson notes that the DEI Media Division will soon announce further additions to the product line, including an advanced high performance cartridge. This is made possible by the drive technology and testing concepts that have brought DEI its reputation for technical leadership in the digital cartridge tape drive field.

Data Electronics manufacture peripheral storage products available in the UK through CPU Peripherals.

CPU Peripherals, Rodd Industrial Estate, Govett Avenue, Shepperton, Middx TQ17 8AQ.

In case of emergency.

Putting out the fire

ACCORDING to Inmac, for maximum protection of valuable computer equipment from fire and the possibility of, say, overhead sprinkler systems coming into operation, every CPU, peripheral or VDU should have an extinguisher within easy reach to put out a fire quickly.

It is also important to have the right kind of extinguisher, otherwise even more damage could result if the wrong one were to be used. For example, dry chemical types leave residues, CO_2 extinguishers are so cold that they can crack and destroy ICs, while water on electrical equipment is deadly.

There is only one kind of extinguisher material that should be used anywhere near a computer and that is a chemical called BCF, says Inmac. This is a non-corrosive vapour that snuffs out the flames and then evaporates without trace or damage.

Inmac produces a range of extinguishers using BCF in sizes convenient for use in computer establishments. The extinguishers are all guaranteed to work for five years and have a patented "once-only" seal ring beneath the striker.

This provides an obvious visual check on whether the extinguisher is part-filled and giving only part protection. The extinguishers conform to BS2G 100 : Part 2 and BS 5423.

Prices start at £19.

Inmac (CW), Astmoor Industrial Estate, Runcorn, Cheshire, WA7 1QF. Tel: (09285) 64321.

Briefcase micro has 8 Mbytes disc storage

FOLLOWING its debut at Compec 82, UK based Advanced Software Technology has made its mass storage briefcase computer system available in Europe.

Known as the Compucase, the portable system has eight Mbytes of disc storage, a screen, a full size Ascii keyboard and an 80 character width printer — all contained in a 13in × 18in × 5.5in briefcase.

The unit's one-off price is now £2,800. Multiple order and trade discounts are available.

The system runs under CP/M and has a wide range of micro software available with it.

There are two processors used in Compucase: a main processor and a secondary one used for display and printer I/O control. Both processors are Intel 8085AH-2s. It has 64K of user program RAM, 2K of shadow ROM, and 8K of buffer storage. Backing data storage consists of eight Mbytes of removeable disc storage. The latter is made up of a cartridge of five 1.2 Mbyte floppy discs.

The visual display screen is built into the lid of the unit. Gas plasma techniques have been used, giving a 40 character of 12 line display.

The printer uses a 5×7 dot matrix head printer at a speed of 80 cps over 80 print positions. "We see Compucase as having many immediate applications, but we'll be concentrating initially on selling through dealers" states Phil Goulson, managing director of AST. "Dealers will be appointed for identified application markets — we might even appoint some large conglomerates as dealers to themselves," he adds.

Advanced Software Technology (CW), 48a Central Road, Worcester Park, Surrey. Tel: 01-330 0764.

AST's 8 Mbyte briefcase computer.

Printer for WP and DP applications

DATA Design Techniques is now marketing the Anadex WP 6000 multi-purpose printer which prints correspondence quality at 150 to 180 chps, or data processing copy at 200 to 330 chps. The WP 6000 offers full text formatting facilities and can print at 10 or 12 pitch or proportional spacing in word processing mode, and at 10, 12 or 16.7 characters per inch in data processing mode. Diablo Model 630 emulation is standard.

Three resident character fonts are provided as standard: Serifs, Helvetica and a scientific character set. Character sets and fonts can be down loaded from the data source and additional character sets can be added as options. All character sets can be printed orthodox or in italics. The print head is 18 wire.

Word processing text handling features include subscripts, superscripts, double width characters, simultaneous underline, text centering and left and/or right hand justification; centering and justification can be carried out in both single and double column format. There are 16 horizontal and 16 vertical tabs and line spacing can be selected to be 6, 8, 12 or 16 lines per inch.

In addition to the correspondence quality output at 150 to 180 chps, high speed draft printing can be performed at 280 to 330 chps without penalty to text handling capability.

Standard data processing copy is produced at 10 chps, 300 chps. In the enhanced DP mode printing is at 10, 12 or 16.7 chpi at 200, 240 or 330 chps respectively.

Data Design Techniques (CW), 68/70 Tewin Road, Welwyn Garden City, Herts AL7 1BD. Tel: Welwyn Garden 34774.

Multi-media storage.

Disc box can be locked

THE new Accomedia lockable floppy disc box is available in two sizes: reference No. 50016 for 5¼in diskettes, reference 50017 for eight inch discs.

Made by Acco, they retail at £26.50 and £28 respectively. Both boxes have a smokey grey transparent lockable lid and a dark grey base, moulded in tough engineered plastic. They hold up to 60 discs each and come with five index dividers displaying coloured signals.

Acco (CW), Bretton Way, Bretton, Peterborough. Tel: (0733) 264711.

AWS workstation now has 16-bit processor

CONVERGENT Technologies has announced a new version of its low-cost AWS Turbo workstation. The AWS Turbo uses a 16-bit processor and offers up to four times the performance of earlier units at no increase in price, says Convergent.

The company changed to the eight MHz 16-bit Intel 8086 processor and a proprietary memory management scheme that increases the speed of memory access cycles. The high performance of the AWS Turbo is beneficial to highly interactive integrated office systems and other processor intensive applications which place heavy demands on the CPU.

The AWS Turbo line offers double the disc storage capacity in equivalent workstation units by introducing double-sided, double-density floppy disc drives. Up to five Mbytes of mass storage are available in a combination of mini-floppy and mini-Winchester disc drives mounted on a single unit.

The new units are fully compatible with all members of the Convergent AWS workstation family, as well as the complementary IWS family.

The new Turbo workstation is available with Convergent's Multiplan financial planning software.

Data management facilities include multi-key ISAM with record-level locking for flexible access to records.

Convergent Technologies (CW), Lynton House, Mill Lane, Gerrards Cross, Bucks SL9 8AY. Tel: (02813) 88287.

Fixed and removeable discs in 5¼ inch drive

THE Cynthia Peripherals Division of Cii Honeywell Bull has announced a 5¼in drive with 21 Mbytes (fixed and removeable). The Cynthia D520 unit is said to be unique in incorporating two 5¼in discs — each of 10.5 Mbytes — one fixed and the other a removeable cartridge.

Its dimensions and capacity give the new Cynthia D520 the best size/capacity ratio now available on the removeable disc market, claims the company, with 26 Mbytes (unformatted) storage in the compact dimensions of the standard 5¼in floppy disc unit. This small physical size is made possible by the use of four LSI circuits, three of which were developed by Cii HB: one HMOS, replacing about 50 MSI circuits and three bipolar, replacing 30 circuits.

The D520 answers the requirements of the international market for 5¼in disc units by offering large storage capacity, compatibility and removeable discs. The D520 is compatible with the Seagate interface and has a SASI interface. The cartridge itself conforms to Ansi standards.

Cynthia Peripherals Division, Cii Honeywell Bull (CW), Kingswick House, Sunninghill, Berks. Tel: (0990) 23491.

Root installs first Unix III package in Europe

ROOT Computers has released details of the first Unix Systems III application package that it has installed in Europe.

The order was from Microlease in Harrow for a Conference Registration and Administration System for the ICIE — an International Conference of Evangelists — to be held in Amsterdam, later this year.

The conference organisers placed strict requirements on the capabilities of the package. In particular, the system had to be easy to use, capable of fast and complex sorts, and able to hold in excess of 2,500 personnel registration details.

The system, operating under Unix System III, runs on a DEC PDP-11/23 and is controlled by users who have no previous computing experience. In addition to holding large amounts of data on each delegate, the system can sort over a wide range of details, including sessions to be attended, country of origin and other personal information.

A sort could be carried out on country of origin, sub-divided into alphabetical name order and broken down into age group.

Root Computers (CW), 3 Hayne Street, London EC1. Tel: 01-726 6501.

PRODUCTS

NCR claims new concept in checkout systems

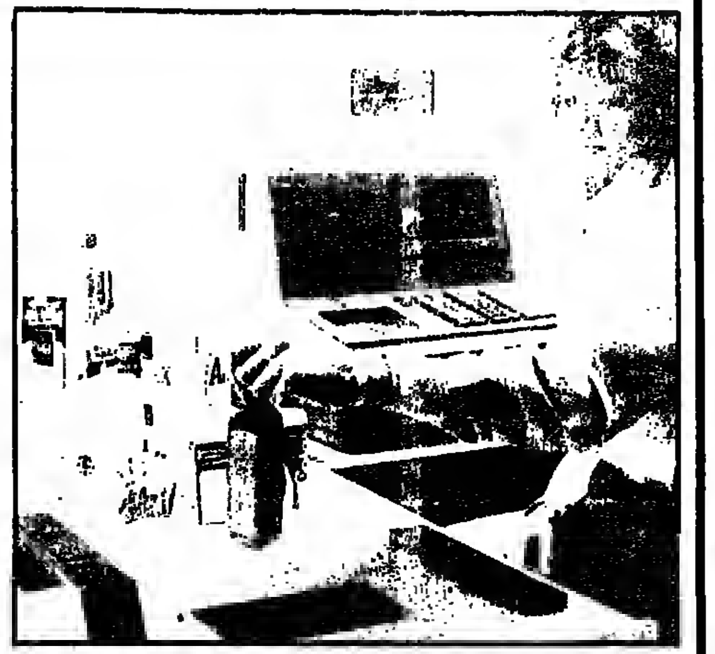
NCR has released what is claimed to be a new concept in supermarket checkout systems. For the first time, the single lane food store can have the same systems technology as the medium-size supermarket and the large hypermarket by using the NCR 2126 supermarket checkout system. The system can also include slot scanning.

The NCR 2126 can be used as a single unit or as a consolidated system, with scanning. The hardware can be modular to suit individual checkout layouts and the system can be expanded in stages as business demands. Migration can be made from a key entry system to a scanning system, and from a single checkout configuration to a clustered system with consolidation features and shared resources.

The keyboard has international 10-key pad, programmable function keys and product group total keys. Changes to the keyboard layout can be made at any time and the standard program can be adapted to individual checkout requirements. Roll changing can be accomplished quickly by the cashier with minimum disruption to the customer, says NCR.

There are a variety of optional features which can be easily added to the basic system. These include the EAN scanner and a large alphanumeric customer display giving the name of the product with the quantity and the price.

NCR (CW), 206 Marylebone Road, London NW1 6LY. Tel: 01-388 8248.



The NCR 2126 Supermarket Checkout System.

Parts for use in the aircraft industry being machines on a Matsuura vertical machining centre at JFB Engineering.

Programming by computer

A COMPUTERISED numerical control programming system from Engineering Computer Services of Tamworth, Staffs, has been installed at a leading engineering sub-contractor in the Home Counties, where it is said to have paid for itself in less than two months.

JFB Engineering of Leighton Buzzard undertakes a broad range of machining work, and is a major supplier of components to the aircraft seat industry, which involves extensive machining of light alloys to high standards of accuracy.

There are eight computerised CNC machining centres in use, as well as computerised CNC lathe and a number of program sequence controlled lathes.

When JFB began installing computerised NC machines, all programming was carried out using manual data input at the individual machines.

While this was satisfactory as far as cutting requirements were concerned, it began to present problems in regard to programming component geometry as the work load increased.

The company decided to use a computer-aided programming system, and selected Orion, developed by ECS, to run on the Hewlett-Packard 85 desktop minicomputer as the most economical package.

Engineering Computer Services (CW), Piccadilly, Tamworth, Staffs B78 2ER. Tel: (0827) 873300.

Display units designed to replace teleprinters

THE DD-Vitel display units from Data Dynamics are claimed to be suited for replacing traditional teleprinters in telegraph communications systems.

Data Dynamics' sister company, ATS (Communications) designer of the Vitel, has successfully installed large systems, some comprising over 70 terminals, in major industrial sites throughout the world.

When used as a direct replacement for teleprinters, the DD-Vitel is said to offer many advantages, one of which is silent operation. This can be particularly important in the multi-terminal message preparation installations used in many large multinational companies. Other advantages claimed for the DD-Vitel include increased throughput and improved accuracy as a result of the terminal's microprocessor controlled programmable functions and integral 32 Kbyte memory.

The DD-Vitel offers a data retention mode for storing standard or near standard blocks of text which may then be incorporated in successive messages to different addresses.

Eight programmable function keys are utilised for inserting standard headings and multiple address codes.

Data Dynamics (CW), Data House, Clayton House, Clayton Road, Hayes, Middx. Tel: 01-848 9781.

Pragma to sell French printers

TWO new specialist printers, made by IER, France, are now available in the UK from Pragma.

The IER 310, designed for counter transactions, prints on to paper up to A4 size and will automatically adjust to different thicknesses of document up to 2.5mm. It prints at up to 160 chps.

The IER 320 is a single sheet printer designed for shelf labelling and similar operations. Primarily designed for bar-code printing, it also prints alphanumerics as required.

Pragma (CW), Pragma House, Weirvale Industrial Estate, Denham Way, Rickmansworth, Herts WD3 2RL. Tel: (0923) 720326.

BOOKS

A successful course of instruction in the use of decision tables

Decision Tables in Software Engineering. Richard Hurley. Van Nostrand Reinhold. £16.10. pp 164.

RICHARD Hurley's book shows his passionate interest in his subject. His commitment to the use of decision tables enlivens the book and demands the attention of the reader.

His primary purpose, to educate in the use of decision tables, is undoubtedly fulfilled. A secondary objective is to justify their use in the context of software engineering. This is not dealt with so successfully.

Chapters 2 to 9 explain clearly and simply how to use decision tables. They are based on the author's lecture notes and reflect an excellent training course covering both basic and advanced concepts in adequate detail.

Examples are easy to follow and the style of writing allows continued concentration. Chapter 10 introduces the theoretical basis of decision tables — Boolean Algebra. Chapter 11 provides a useful checklist for evaluating preprocessors.

The main thrust of the author's argument for using decision tables is that ". . . practices of software engineering have a weak point: the design of the internal logic of the module or segment."

This is surely incorrect. Software engineering techniques, such as structured programming, do indeed apply to the lowest level of design detail. The argument is not supported by examples in the book as, to make them easy to follow they are at the conceptual systems level. The decision tables are used instead of software engineering principles, not with them.

This impression is reinforced by the use of Chapin charts to illustrate the text and a chapter (9) showing the translation of decision tables into software engineering formats and vice versa. The anecdotal examples of savings made are either fairly ancient (e.g. a 1958 example) or make comparisons with primitive techniques.

The book is extremely successful in its aim of instructing in the use of decision tables. Either a much sounder argument should have been developed about their applicability or, preferably, the argument should not have been raised. The explanatory content of the book is so clear that even a cursory reader would be able to judge the benefits of decision tables.

Any data processing practitioner who either knows nothing about the subject or wishes to learn how to apply it would fine the book useful.

William Scott-Jackson

Guide for expert and enthusiast

Pascal at Work and Play. Richard S. Forsyth. Chapman and Hall.

RICHARD Forsyth states in the preface of his book that it is suitable for the computer professional as well as the enthusiast. At first, I had doubts as to whether he could justify such a claim, but after reading it, I can honestly say that Pascal at Work and Play will cater for both categories.

The book is divided into three main sections: Pascal at Large, Pascal at Work and Pascal at Play. Modular programming techniques have been employed throughout the book, with little reference made to flowcharts.

My main criticism of the book, is that I would have liked to have seen Pascal reserved words printed in boldface, thus making them distinct from names of variables. But the easy style that the book is written in makes Pascal at Work and Play one of the best introductory books on the market.

David Janda

Practical approach to Pascal standard

A Practical Introduction to Pascal — with BS 6192. I. R. Wilson and A. M. Addyman. The MacMillan Press Ltd. £6.95.

USE of Pascal has increased significantly since the first edition of this book was written in 1977. One important result of Pascal's widening popularity has been the production of a BSI/ISO Pascal standard, BS 6192, earlier this year, which has been incorporated into the new edition.

Written by two lecturers from the Department of Science at the University of Manchester, the book takes the form of an introductory lecture course given there.

Each chapter introduces and explains one or more aspects of the language, interspersed with plenty of examples and syntax diagrams, and finishes with practical problems for the student to tackle. Some of the exercises are straightforward "pencil and paper" type, but others require the student to write a program and test it interactively.

Unfortunately not all the answers have been included at the back of the book, although the authors say in the introduction that they are available on application by teachers.

Design of data structures is very heavily stressed, with seven chapters devoted to the subject, five of which explain the methods applicable to sequential files, sets, arrays, records and variants. Reducing a problem into sections by use of procedures in a "top-down" design approach is described with great clarity, although the authors decline to go into the treatment of store allocation to parameters because it is "too advanced a topic."

Despite being described as being "directed both at beginners and at experienced programmers wishing to learn Pascal," I felt that this book assumed a minimal knowledge of computers and of programming in its readers and might be confusing to a total novice.

It is excellent for anyone able to program in any other language because it gives the "flavour" and characteristics of Pascal early on.

Maggie McLening

Plunging head-first into a CPU is nothing new

Informagie. Jean-Pierre Petit. John Murray Ltd. £4.95.

INFORMAGIC recounts the adventures of Archibald (not "Hurricane") Higgins. It is a cartoon strip written and drawn in 1980 by a French polymath called Jean-Pierre Petit and translated into English by Ian Stewart.

Petit is among other things a research astrophysicist, a lecturer in sculpture and creative metalwork and head of the micro-informatic laboratory at the University of Aix-en-Provence (Honest! It says so in the blurb).

In 1980 Tron had yet to hit the screen, so perhaps the idea of falling into the bowels of a computer was novel. In 1982 it is definitely fraying at the edges.

Higgins hits ABRACADABRA (and RETURN of course) on the keyboard and plunges head-first into the CPU. There he is pressed into service driving a truck around fetching the contents of memory (the bus — geddit?), helping out the addition unit and generally making himself useful.

In the course of his travels he meets the various demons — such as the Random Number Generator, who looks like Dracula — that keep the place ticking over, and is given a series of grossly oversimplified and misleading accounts of how things get done within a computer.

Meanwhile upstairs the delectable Sophie (a kind of Informatic Varoomshka in a body-hugging leotard) wonders why her program is taking so long to run. Eventually Archie gets a message to her via the audio interface and she gives the command to let him out.

Hero and heroine are reunited in a final clinch leaving the computer to chug along as best it can with Archie's left shoe inside its guts — presumably in the bootstrap ROM.

At £4.95 the book is not expensive, but I still would not buy it. It is an attempt at a kind of latter-day Through the Looking Glass which does not come off. The story and the background logic do not mesh properly and the explanations mix generalities with peculiarities.

The naïve reader, at whom the book seems to be aimed, will pick up an ill-assorted rag-bag of ideas in which, for example, oddities of the Basic language appear as programming principles.

Even the pictures are not too great.

Richard Forsyth

Systems development

Structured Systems Development Techniques. G. Collins and G. Blay. Pitman Books. £16.00. 350pp.

HAVING used the BIS structured programming methodology for a number of years, the reviewer found this collection of integrated systems development techniques most interesting.

The authors describe coherent methods for the successful completion of each phase of a system project. The first part of the book is written at a managerial level and highlights the importance of determining the overall computing strategy, as well as suggesting ways of introducing new working practices.

Part Two describes fully a methodology for each phase of the whole development process.

Part Three consists of self-contained essays on various techniques of use to system staff (including data analysis and activity diagrams).

All the methods advocated have been developed by the Modus division of BIS, and the book sometimes reads like an advertisement for its services. Nevertheless there is sufficient detail to enable the methods to be applied, and sufficient argument to convince the reader that their application could be advantageous.

Occasionally the authors' opinions are unsubstantiated (as in the discussion on prototyping) but generally the book is well written and clearly argued.

The contents index and glossary sections are well structured. Much use is made of illustrations (most in the form of Activity Diagrams). The authors stress the importance of systems staff applying the same rigorous techniques to their own work as to that of their users.

In the same way the authors have applied their own recommendations to the production of this book.

Anyone especially in a supervisory or managerial role in the data processing field should find this book useful. It is widely applicable as its proposals can be used individually. But the more beneficial use of the whole methodology would probably require more impetus and assistance than the book alone can provide.

W.S.-J.

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(2068)

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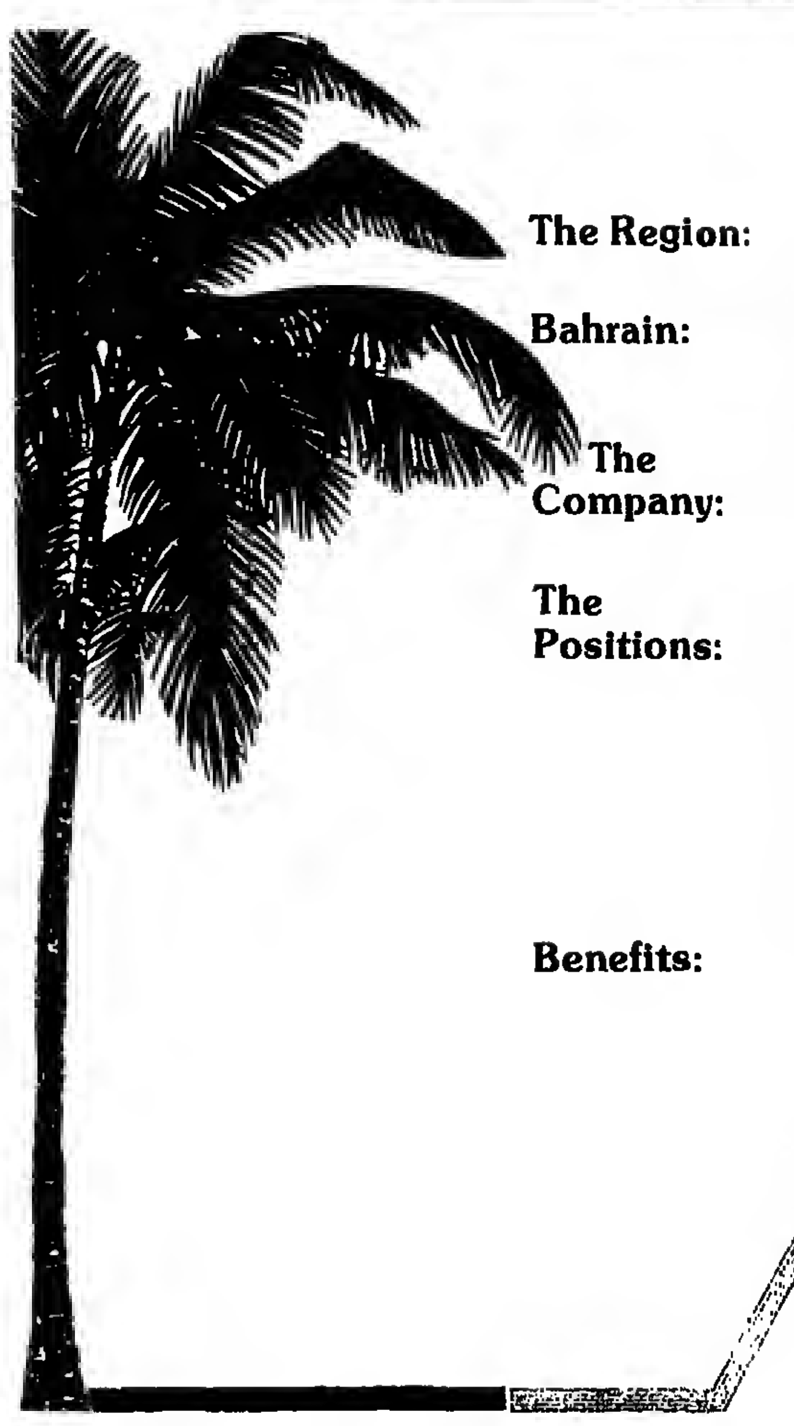
Bahrain



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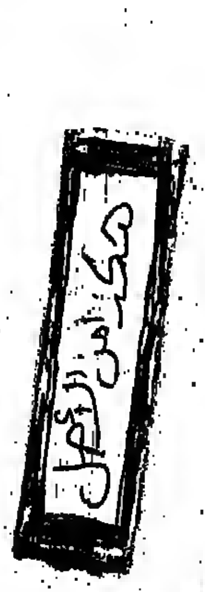

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(cw6/1)

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(2078)

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IBM Systems Programmer

The Computing Division of the Rutherford Appleton Laboratory runs a large scale computing service supporting several thousand scientific users both at the Laboratory and in universities throughout the UK. There is a mainframe complex consisting of an IBM 3081 and a 3032, with an ICL Atlas 10 on order, and numerous distributed systems including VAX, GEC and PRIME. A large X25 network is supported and high speed local networks are being developed.

There is a post in the Systems Group for a Programmer to join the mainframe development team. Experience of IBM MVS/MVT or VM is necessary.

Applicants should have a good honours degree in Computer Science or a related subject.

The post will be in one of the following grades, depending on your qualifications and relevant experience:

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Application forms from: Recruitment Office, RAL, Science and Engineering Research Council, Chilton, Didcot, Oxon OX11 0QX. Tel: Abingdon (0235) 445435 quoting ref VN. 089.

Closing date for applications: 27th January, 1983.

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(2040)

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Please write initially to: Mr. R. P. Farr, Director of Personnel, Shelvoke and Drewry Ltd, Icknield Way, Letchworth, Hertfordshire SG6 1EN.

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Overseas candidates should send an additional copy of their application to the Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF.

Closing date for receipt of applications is [illegible] January, 1983.

(2047)

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- able to demonstrate successful software management experience
- Degree/HND qualified in Electronic or Science subjects.

Background experience within an Electronic or Computer System company is highly desirable.

The environment is Real Time with the use of **DEC VAX** and other advanced hardware systems. The responsibilities will be to manage a department of 35 software engineers with a budget responsibility of £500,000.

The task will involve the complete co-ordination of software requirements within the company and the development of strategies to satisfy the software demands of new generations of innovative products.

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(2087)

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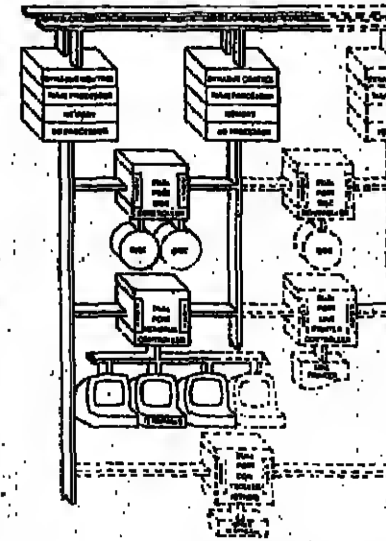

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(2016)

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A.P.5 £7,791 – £8,325

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Closing date: 24th January 1983

(2085)

BOX NUMBERS

Box number replies should be addressed to:

Box Number ....

c/o Computer Weekly,
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UNIVERSITY OF SOUTHAMPTON
FACULTY OF MEDICINE

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Applications are invited for the post of Lecturer in Biocomputation. Candidates should have a degree in Computation, Mathematics, Electronics or another suitable subject, together with a higher degree or substantial research experience.

The duties will involve teaching medical students the potential and application of computers in medical and biological sciences and while specialist knowledge of these subjects would be an advantage, it is not essential. The Lecturer will be expected to develop research projects both on his own and in collaboration with other members of staff in the hospitals and the University.

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Further particulars may be obtained from the Staffing Secretary, The University, Highfield, Southampton, SO9 5NH, to whom applications (7 copies from applicants in the United Kingdom and one from overseas) should be sent not later than 28 January, 1983, quoting Ref. 82/35/AJS/C.

(2066)

UNIVERSITY COLLEGE LONDON
Department of Physics and Astronomy

IMAGE PROCESSING GROUP

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(2089)

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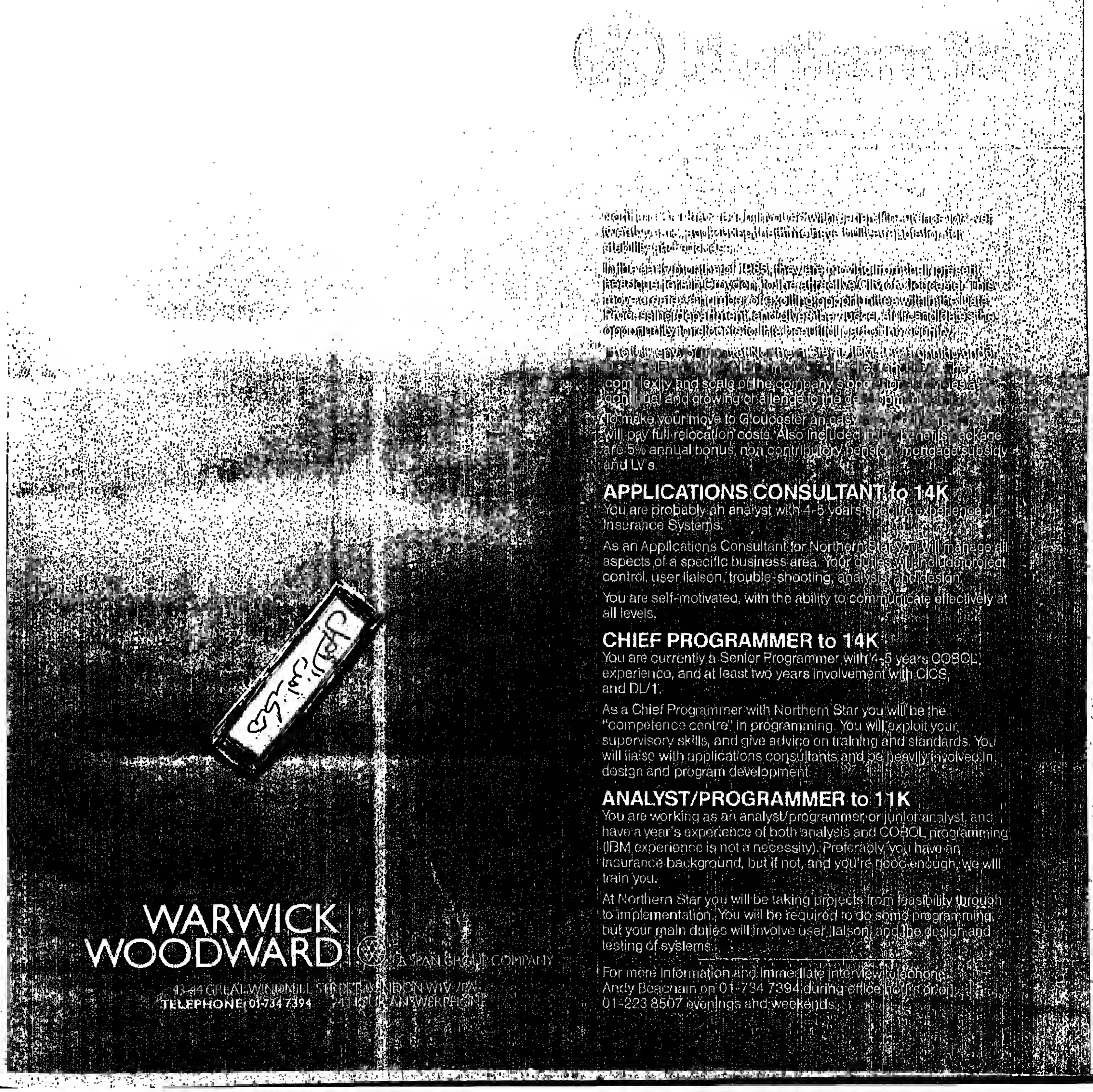

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As a Chief Programmer with Northern Star you will be the "competence centre" in programming. You will exploit your supervisory skills, and give advice on training and standards. You will liaise with applications consultants and be heavily involved in design and program development.

ANALYST/PROGRAMMER to 11K

You are working as an analyst/programmer or junior analyst, and have a year's experience of both analysis and COBOL programming (IBM experience is not a necessity). Preferably you have an Insurance background, but if not, and you're good enough, we will train you.

At Northern Star you will be taking projects from feasibility through to implementation. You will be required to do some programming, but your main duties will involve user liaison and the design and testing of systems.

For more information and immediate interview telephone Andy Beacham on 01-734 7394 during office hours or on 01-223 8507 evenings and weekends.

WARWICK WOODWARD | A SPAN GROUP COMPANY

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TELEPHONE 01-734 7394 24 HOUR ANSWERPHONE

MVS
Systems Programmers

London and The West Country

c £15,000 + Car

Maintaining our position as one of the world's leading Computer Manufacturers demands innovative and high quality products – and support of the highest calibre.

Our large scale IBM compatible system has been internationally acclaimed, and is the major component of a superb product range ensuring our future success. Our Support Team already comprises highly skilled professionals with vast experience within the IBM mainframe/compatible market. As part of our accelerating development plans we are now able to offer Systems Programmers/Systems Engineers an opportunity to join this team.

We require Candidates with sound experience of MVS, however equally important you should be able to demonstrate well developed interpersonal skills, enabling you to work closely with our customers on all aspects of software development and support.

Opportunities are currently in the London area and The West Country, and we are happy to relocate suitable Candidates.

These positions undoubtedly represent considerable challenge to enthusiastic and career minded individuals wishing to advance their career within a thoroughly professional and dynamic Organisation, so no matter whether you are currently working for a User, Software House or Manufacturer telephone now our Advising Consultant **Peter Lees** on **021-236 3781** (24 hour answering service) or 0902-632141 (Evenings and Weekends).

Interviews will be held in London, Birmingham and Manchester.

Technical, Sales & Management Appointments

(1777)

SCR

Specialist Computer Recruitment Ltd

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James House, 46 James Street,
London W1M 5HS
01-935 0671/486 0461

MIDLANDS & INTERNATIONAL
35-37 Great Charles Street,
Queensway, Birmingham B3 3JY
021-236 3781

NORTH
International House, 84 Deansgate,
Manchester M3 2ER
061-833 0427

BELGIUM
Avenue Louise 327,
Boite 4, 1050 Bruxelles
010 322-640 7151/71

HOLLAND
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1071 H.M. Amsterdam
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CENTRAL LONDON **£12,000-£17,000**

One of the UK's most professional and successful Systems Houses with a track record second to none in providing R&D to Government and Industry, seek additional Senior Scientific and Software Designers with extensive experience in their respective fields.

The Company have a number of openings now at Senior Grades for applicants with several years' experience (up to 10 plus) in Military and Defence projects.

Candidates must have a strong academic background to include a numerate degree or in a computer-related subject. Ideally they will have worked in Systems Engineering or Software Designs for a number of years on Defence/Communications projects.

Successful candidates can expect to join a company where professionalism comes first and where the quality of projects and experience gained will enhance their careers for many years to come.

Please contact the advising consultant on 01-399 9183 or write to us preferably enclosing your C.V. Ref. CW41/2.

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01-399 9183
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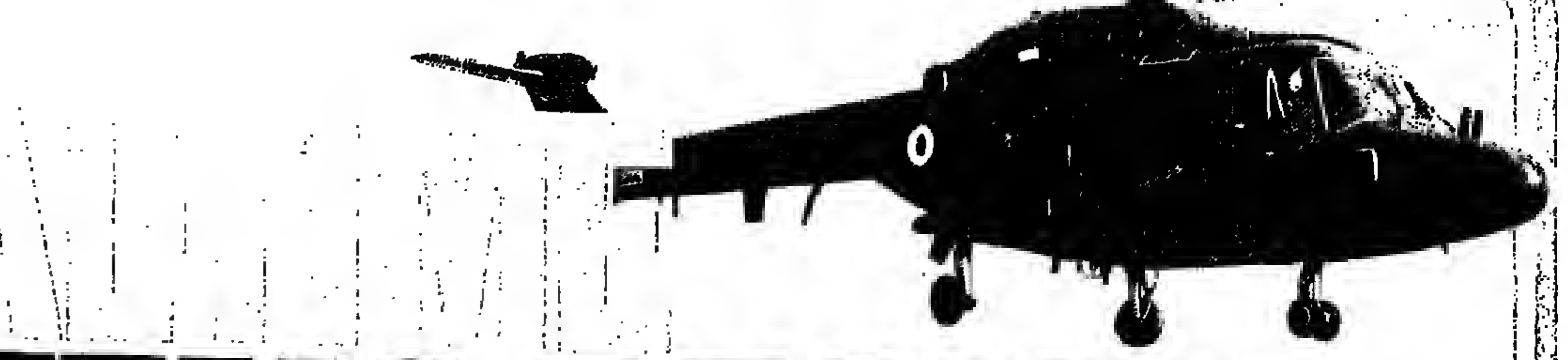

REAL TIME

SYSTEMS DESIGN & ANALYSIS

AT A TIME when the Avionics Industry is in a period of sustained acceleration into new areas of technological advancement, one company is leading the field in a particularly exciting growth area.

That company is a world-famous name based in Cheltenham - with a reputation for technical excellence combined with forceful innovation.

Several exciting new programmes are underway incorporating the application of the latest microprocessor technology to advanced avionic systems.

To work on these programmes several talented men or women are now required.

SALARIES £8-13½K CHELTENHAM

DIGITAL DESIGN ENGINEERS

To work on the application of microprocessor and advanced data transmission systems and to become involved in trade-off studies on different system configurations in conjunction with Software/Systems Engineers and Analysts.

Post-graduate experience should include the use of modern design tools (including MDS systems and ICE), well developed circuit design skills. Exposure to serial data bus systems, fibre optics and electromagnetic compatibility would be an advantage.

MATHEMATICAL MODELLER (OR ANALYST-CONTROL SYSTEMS)

This is an opportunity to participate in the generation of mathematical models of aircraft dynamics, control and navigation systems - and in performance assessments using these models and other criteria. Your background should include the use of FORTRAN on VAX 11/780 and, preferably, a knowledge of aerodynamics, modern filter theory and statistics.

SYSTEMS DESIGN ENGINEERS

To further develop the use of microprocessor technology in real time applications for aircraft navigation and control systems - including some experimental systems and software work.

A background in digital avionic systems design and application should be supported by the ability to effectively link the work of Software and Hardware Engineers - and to produce novel concepts in computer architecture and software, particularly redundancy techniques for high integrity.

SOFTWARE ENGINEERS

required to join a team engaged in
* the prepration of high integrity airbourne software programmes for civil and military control and navigation applications.
* trade-off studies on different system configurations in conjunction with systems and hardware engineers.

The skills required include the ability to convert general systems performance requirements into software specifications, to prepare accurate software programmes and to validate them.

Experience in programming for real time applications at assembler level or using CORAL 66 based on PDP 11 or HP 1000 host computers required. Knowledge of modern 16 bit microprocessor architecture an advantage.

Only in exceptional circumstances will candidates with less than 2 years relevant experience be considered.

Applications for these positions should be made in the first instance to Mike Beesley, Sanderson Computer Recruitment Ltd, 41/43 Baldwin Street, Bristol BS1 1RB. Tel. (0272) 211741.

Sanderson
COMPUTER RECRUITMENT
Tel. (0272) 211741/4

Business Consultant

Cleveland

Five Figure Salary + Car

The Structural Steel Fabrication Division of a large multinational has further strengthened its resource through the recent acquisition of companies in the North East of England.

The Group's commitment to advancement through technological growth is evident – a factor which is particularly true of their attitude towards the introduction of sophisticated data processing tools within all Group Divisions. They now wish to progress this philosophy within the Group of Companies dedicated to steel fabrication and erection contracts for the construction of modules for use in North Sea oil exploration, by the identification of a Business Consultant, to determine the strategy to be adopted through the evaluation of hardware and software products applicable to the business area.

Reporting to the Director of Computing, you will investigate, appraise, advise and assist in the development and implementation of a wide range of engineering, accounting, planning and administrative problems, generally working towards maximising business efficiency within a highly competitive and highly results orientated Company.

Applicants will ideally have a background in engineering and/or accountancy, where preference will be shown to candidates with both mainframe and mini computer experience. The most important attributes will be the ability to exhibit a broad awareness of Commercial and Industrial practice, both in the areas of Computing and Business generally, and a willingness to accept full local responsibility for installed systems.

As an Internationally prestigious organisation with vast resources they are in an excellent position to offer a rewarding return to an experienced and committed individual, and therefore a worthwhile opportunity for personal advancement can be realised.

Applicants are asked to contact **Jacqui West** on **061 833 0427** during working hours or **061 449 9911**, Evenings and Weekends to arrange an initial interview in either Cleveland, Manchester, Birmingham or London.

(2092)

Technical Sales & Management Appointments

SCR

Specialist Computer Recruitment Ltd

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James House, 46 James Street, London W1M 5HS 01-935 0671/486 0461	35-37 Great Charles Street, Queensway, Birmingham B3 3JY 021-236 3781	International House, 84 Deansgate, Manchester M3 2ER 061-833 0427	Avenue Louise 327 Boite 4, 1050 Bruxelles 010 322-640 7151/71	Willemsparkweg 92 1071 HM Amsterdam 010 3120-760947

Switzerland

Telecommunications Software Development

English Speaking Project

We have been retained by an international telecommunications company to recruit several SOFTWARE ENGINEERS to develop and implement software for a NEW PUBLIC DATA SWITCHING SYSTEM, involving working on Operating Systems, Diagnostics, Telex applications and X25 Interfaces.

Candidates should have a degree, 18 months plus Assembler experience, preferably in a Telecommunications environment on minicomputers. An in-depth knowledge of real Time Operating Systems would be advantageous.

Successful candidates may look forward to enhancing their career prospects, gaining valuable experience in an international environment.

Interviews will take place in London in February. For further details on the above company, conditions of employment and living in Switzerland please send a c.v. or telephone for application form quoting the reference number CW41/1.

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RECRUITMENT SERVICES
01-399 9183
Datamatics, Freepost, Surbiton, Surrey KT6 5BR

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High tax-free earnings and good benefits

Our client is one of the most well established word processing sales organisations in Saudi Arabia, enjoying continuing success with the marketing of the sophisticated CPT range. The Saudi company is backed and managed by a major European International business with a sound trading history over many decades. Expansion plans necessitate the creation of new positions and opportunities as follows:-

Support Manager

c. £21,000

The CPT team already have a wide user base and further market penetration and improvement in software facilities now calls for the appointment of a Support Manager. He must be experienced in WP systems and communication protocols and a knowledge of CP/M based systems would be an advantage. Supervisory experience is expected.

All positions call for mobile people available early in the new year and only bachelors or those willing to accept bachelor status need apply. Excellent overseas package in terms of earnings, accommodation etc. Full details available, write or 'phone (24 hour answering service) quoting ref: CW100-3D – VERY URGENT – INTERVIEWS LONDON NEXT WEEK.

CAPP ASSOCIATES
01-686 9693
Capp House, 96d South End,
Croydon CR9 3SD.
International & UK Recruitment Consultants

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£25,000 +

Salesmen who work hard and are used to achieving quota in the UK, will relish the money-earning opportunities in Saudi. If you have 2 or more successful WP sales years behind you, you will be ready to capitalise on the most buoyant market anywhere. With a good basic and advantageous commission scheme you can realise extremely high earnings.

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Start the New Year as part of our professional team of Contract Analysts and Programmers. We would like to hear from experienced freelance consultants with the following skills.

CONTRACTS

★ IBM	Analyst/Programmers	IMS DB/DC ADF
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★ HP3000	Programmer	COBOL
★ IBM	Programmer	COBOL VSAM
		COBOL DL/1
★ Data General	Programmer	COBOL AOS INFOS 2

Don't delay, send a cv or phone:
Jackie Robbins or Sandra Monks today!

(2051)

Sales Executives

Microcomputers

c. £20,000 + car ***Uxbridge area***

US

Granada Group is launching a new subsidiary company, Granada Microcomputer Services Limited, to market a wide range of microcomputer systems to the business user. The first store will open in a high street location in the Uxbridge area.

YOU

You will have proven sales experience involving micros together with an understanding of accounting or similar applications. An awareness of small business practices, problems and micro based solutions would be ideal.

THE JOB

Here's an opportunity to make a significant contribution to this exciting new venture. Each Sales Executive, though store based, will spend much of his or her time visiting potential clients within the area.

Earnings potential, based on target performance, will be around £20,000 including a high basic salary and initial guaranteed commission. Benefits include a company car.

If you are ambitious, professional and believe you could make a major contribution to our new business as a Sales Executive, we would like to hear from you.

If you feel you could contribute in some other way to a fast growing microcomputer operation (eg sales management, support, customer training, etc.) then we would also like you to get in touch.

GRANADA
Microcomputer Services

For an informal discussion please telephone Chris Evans or John Vince on Bedford (0234) 55233. Alternatively send brief career details to Chris Evans at Granada TV Rental Ltd., P.O. Box 31, Ampthill Road, Bedford MK42 9QQ.

CONTRACTS

IBM COBOL CICS DL/1 URGENT S. LONDON
IBM COBOL DL/1 V-SAM URGENT S. LONDON
IBM RPG II SYSTEM 34 LONDON
HP3000 IMAGE/QUERY URGENT KENT
IBM COBOL ADF IMS DB/DC URGENT S. LONDON
IBM COBOL IMS DB/DC URGENT S. LONDON
IBM PL1 IMS DB/DC URGENT LONDON
IBM VM ASSEMBLER URGENT S. LONDON
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START JAN/FEB
IBM SYSTEM 34 COBOL ANALYST/ PROGRAMMER LONDON
IBM IMS DB/DC +/− ADF +/− MARK IV
IMMEDIATE START MIDDLE EAST

(2094)

For further details contact NIC POLAND TLP

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A division of Tate & Lyle Industries Ltd.
Leon House, High Street, Croydon CR9 3NH
A member of the Tate & Lyle PLC Group

Telephone
01-686
5656

PROJECT LEADER

DEC BASIC

£12k to £13k

City of London

We are acting for one of the U.K.'s most successful computer services groups, a publicly-quoted company offering bureaux and software services based around an impressive range of PDP and VAX hardware.

As a result of expansion in their commercial division, they now seek an ambitious Analyst/Programmer with at least 3 years' experience of programming and systems design using BASIC+ or +2 on DEC hardware. Experience of payroll, stock control and similar applications would be advantageous.

As Project Leader, you will be responsible for most aspects of the development of sophisticated systems using the latest DEC hardware and software methodology, encompassing pre- and post-sales support, systems design, programming and team leadership; a high degree of involvement with the company's clients is envisaged, and you will be encouraged to take an active part in the development of new business areas.

Prospects for advancement are excellent within a company noted for rapid growth and for young, progressive management.

For further details, contact Barry Latchford on the number below or on Newick (082572) 3197 evenings and weekends, or send a brief c.v. quoting ref. 508

(2101)

BL
Barry Latchford Associates Tel. (0444) 459815/6/7
Blair House, 7 Hazelgrove Road, Haywards Heath, Sussex RH16 3PH

Go deeper into systems . . .

SOFTWARE & HARDWARE OPPORTUNITIES to £16,000

Our client is a world leader in all aspects of advanced defence technology who, with the award of a major contract to develop a completely new underwater weapons systems, is totally committed to an exciting and dynamic long-term development programme.

The company is now seeking specialists with the expertise and innovative spark to maintain the standard of technical excellence which is necessary in this highly demanding field.

There are many and varied roles to fill and your particular skills and experience may well give you a choice of sound career paths within diverse specialist areas. With this wide range of vacancies we wish to hear from you if you have a degree or equivalent qualification in Science, Engineering or Computing and are currently involved in one of the following:

SYSTEMS ENGINEERING ● REAL TIME SOFTWARE DESIGN ● HARDWARE DESIGN, DEVELOPMENT or ENGINEERING

Specific areas of expertise which would be of particular interest include:

Minicomputer and Microprocessor Systems ● CORAL 66, FORTRAN or Assembler Languages ● Acoustic Power Sources ● Active and Passive Sonar ● Transducer Design ● Calibration and Test ● Signal Processing ● Analogue and Digital Systems ● Guidance Systems ● Trials Planning, Analysis and Definition ● Performance Evaluation.

Based in the Home Counties the company offers secure employment, exciting prospects and a first-class salary package. Why not rise to the challenge to go deeper into systems and contact us NOW for more information and an application form.

Telephone KEN TATE or JOHN GRAFHAM on 0494-30517 or write to the address below.

Daton Recruitment Limited 23 Easton Street, High Wycombe. Buckinghamshire HP11 1NY (1816)

daton
Recruitment

SYSTEM DEVELOPMENT ENGINEER

Hardware/Software Walton-on-Thames

Today Chubb occupy a leading position in the design, development and marketing of a wide range of sophisticated surveillance, detection and warning systems for protection against crime and fire.

A development engineer is required to work on advanced communication networks and computer-based monitoring systems.

This post would suit a young graduate, with around two years' experience on real-time microprocessor or minicomputer-based systems. Experience with DEC or INTEL systems would be a particular advantage.

Applicants must have an ability to successfully integrate hardware and software within a complex systems environment. Occasional travel within the UK and Europe may be necessary.

A salary of around £10,000 will be negotiated plus a range of large company benefits. Further career opportunities within the Group are excellent.

Please send full details or telephone for an application form to: Ian Fixter, Personnel Department, Chubb Alarms Limited, Hersham Road, Walton-on-Thames, Surrey. Tel: Walton-on-Thames 43861.

Alarms.

(2072)

"SCOTT WILSON KIRKPATRICK & PARTNERS

COMPUTER PROGRAMMERS

We are a major firm of internationally operating consulting civil and structural engineers and transportation planners. We require two programmers to join our in-house computing section.

One candidate should be a graduate civil or structural engineer, aged 25-30 with 2-3 years' Fortran programming experience in an engineering environment. He/she will be responsible for the design development and maintenance of engineering design and draughting software and for the supervision of other programmers.

The other candidate must have an HNC/H Tec qualification and at least one year's experience in Fortran programming. He/she will be involved in the development and maintenance of engineering design and draughting software and accounting and management information systems.

Both candidates must be willing to travel overseas for short or long terms if required. DEC VAX and graphics experience would be an advantage. We offer flexible working hours, Luncheon Vouchers, group health scheme and a salary dependent on experience.

For application form please write to or phone: Miss Deborah Pond, Scott Wilson Kirkpatrick & Partners, Scott House, Basing View, Basingstoke, Hants RG21 2JG. Tel: Basingstoke 61161.

(2080)

EDITOR
software

Salary package to £12K

An Editor is required for an important journal development in the professional computer field.

SOFTWARE has been published as an ancillary title to Computer Weekly, Britain's largest computer newspaper and the flagship of the computer publications group within IPC Business Press. It is being established independently and is increasing its frequency to monthly during 1983.

The journal is for computer professionals and covers software for systems of all sizes for every sort of application within medium and large organisations.

It needs a talented Editor able to maintain its authority and standard of presentation. The successful candidate will have all the journalistic skills required of an Editor, though not necessarily a full grounding in the computer industry.

The position is within a small and enthusiastic team in a secure and successful publishing company and offers excellent career prospects for the candidate who can show the energy and commitment needed to make the journal grow.

Write a full application, saying why you feel you have the qualities needed for the job, together with a cv, salary history and examples of your work, to: Simon Timm, Publisher, IPC Electrical-Electronic Press Ltd, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS.

These positions are open to both men and women

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We are seeking highly responsible engineers to maintain with minimum supervision customers' high performance OCR mixed-media data entry systems. The equipment includes CPUs, MagTapes, Discs, Printers, VDUs, Recognition Unit, Microfilmer, Terminal Controller and Communications.

Interested candidates with a proven track record in field engineering and customer liaison would have an advantage. Full hardware/software training will be given.

These are career appointments. Remuneration is negotiable, commensurate with the applicant's qualifications and experience.

Write in confidence, with details on your career, to:

SO
The Recruitment Director
Scan-Optics Ltd
35 Sunbury Cross Centre
Sunbury, Middx. TW16 7AZ

([illegible])

SENIOR SALES

International plug-compatible printer supplier/manufacturer is seeking a Senior Sales Person to join its UK operation.

Experience of the end user market place of computer peripherals and in particular printers would be an advantage.

The company is expanding into new premises at Wokingham, and for the selected applicant we can offer career advancement leading into managerial role.

In the first instance call:
SDS Computers UK Ltd
on Reading 0734 [illegible].

(2100)

BOX NUMBERS

Box number replies should be addressed to:

Box Number ....

c/o Computer Weekly
Quadrant House
The Quadrant
Sutton, Surrey SM2 5AS

UNIVERSITY OF EDINBURGH
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Two Computing Officer posts are available, initially for one year, one in each of the following areas:

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Salary probably in the range CO1 (£5,550-£8,085) or CO2 (£8,375-£11,105), but might be higher for suitably qualified candidates. Applications are welcome from individuals wishing to work part-time. Further particulars may be obtained from the Secretary to the University, Old College, South Bridge, Edinburgh EH8 9YL, to whom applications should be sent together with the names and addresses of two referees.

Please quote reference No. 7015.

([illegible])

FOR ADVERTISING RATES AND DETAILS, PLEASE PHONE 01-661 8671

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18K Gtee plus. High Commission

London & Home Counties

A major manufacturer is seeking to expand its sales team with the inclusion of a professional sales executive. You should be capable of developing a new vertical market suitable to your own experience and expertise.

To succeed, and thereby earn well in excess of £30K, your experience should be of selling solutions in a general commercial environment. Initial product training will take place in the States.

Ring Brian Mawdsley 01-734 7282 or write to Barnett Keel Ltd., 35 Piccadilly W1. quoting ref. 801.

(1930)

Barnett Keel

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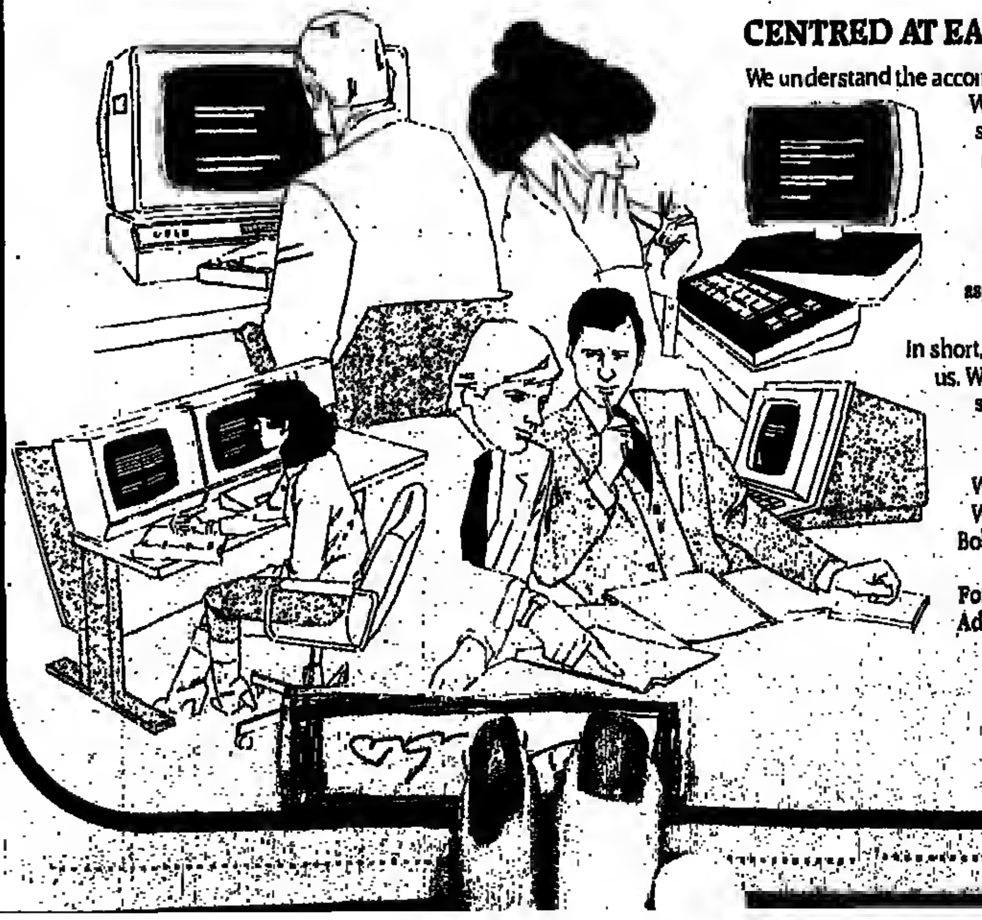

CENTRED AT EAST & WEST LONDON, BIRMINGHAM, MANCHESTER, BRISTOL

We understand the accounting and text processing problems of small and large companies alike.

We appreciate the enormous variety of information required to run businesses effectively. Payroll, sales order processing, integrated stock control, purchase and nominal ledgers, text processing and management information are our business.

The variability of customers' requirements demands total flexibility in any proposed solutions. We have that flexibility in being able to offer a choice of hardware (the latest micro technology) or computer services (batch processing) based solutions. We believe that the solution is the important aspect of the sale and that the method of implementing that solution is secondary.

In short, we are professionals and we are looking for Sales Executives with a professional approach to join us. We have vacancies based in London, Birmingham, Manchester and Bristol and would like to talk to successful Sales Executives with experience in selling computer based solutions to accounting and financial problems.

We are owned by blue chip companies who are household names and what's more, we're British! We also have a superb and continuing source of leads from our parent companies. Why not talk to Bob Bower of Huttons in the first instance. He will tell you all about us and learn something about you.

For further information and to arrange an immediate interview, please contact BOB BOWER, Advising Director quoting reference COW 601

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HP.

TELEPHONE: 01-353 7141 (24 HOURS)

(2077)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

MCS

AUTHORISED digital COMPUTER DISTRIBUTOR

LONDON AND MANCHESTER

£7,000 to £14,000
(plus 12.5 per cent London Weighting)

Management control systems is a successful authorised DEC computer distributor with a rapidly expanding £4million a year turnover. We are based in the North and South of England, with clients throughout the country, and require staff at all levels in both London and Manchester.

We have vacancies for professional staff to work on DEC RSTS/E and VAX/VMS on-line commercial systems. This is a unique opportunity to become involved in a variety of interesting projects, which are to be developed using the latest equipment and techniques. You will work mainly on MCS premises using our computers for development, and travel to our clients' sites for implementation support.

A knowledge of DEC systems is a positive advantage.

There is a Company Car Scheme, Private Patients Plan, Pension Scheme, Profit Share and Provision of Free Lunch Facilities.

The working environment is pleasant and our low staff turnover reflects the satisfaction of our existing staff.

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To £14,000

Proven ability in implementation of on-line distribution or manufacturing systems.

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To £11,000

At least 3 years' experience of on-line commercial applications on the development of RSTS/E systems using BASIC PLUS.

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To £9,000

At least 1 year's programming experience on the development of on-line commercial applications using COBOL or BASIC.

For London vacancies contact:
Merilyn Cohen
4th Floor, Bilton House
54/58 Uxbridge Road
Ealing
London W5 2TL
Tel. No. 01-840 3292
(reverse charge)

For Manchester vacancies contact:
Jane Smythe
3 Wynnstay Grove
Fallowfield
Manchester
M14 6XG
Tel. No. 061-249 7100
(reverse charge)

(2082)

EXCELLENT CONTRACTING OPPORTUNITIES

Our immediate domestic and international consulting needs are detailed below. If you are of a professional disposition, skilled and dedicated, and wish to join our growing permanent or contract staff, please contact us in respect of these and future opportunities.

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ASSEMBLER, DOS/VOS	Programmers	Paris
COBOL, ICL 2900, VME/B	All levels	Kuwait
FOCUS, RAMIS or NOMAD	Analyst/Programmers	USA
UK		
COBOL, IMS/DB and/or DC, ADF	Programmers, Programmer/Analysts Team Leader	Home Counties Worcestershire Essex
COBOL, WANG	Programmers	London
IMS/DB	Database Administrator	Home Counties
VM	Systems Programmer	London
COBOL, ICL 2900, VME/B	Programmer	London
ADABAS, NATURAL	Programmer/Analyst	London
COBOL, HP3000, RAPID	Programmers	London
ASSEMBLER and/or COBOL, CICS	Programmers, Programmer/Analysts	London
RPG II, S/34, MAAPICS	DP Manager	London
NOMAD, RAMIS, FOCUS, INQUIRE	Programmer/Analyst	Home Counties
COBOL and/or RPG II, DOS	Programmer/Analyst	London
COBOL, DOS, DELTA	Programmer/Analysts	Home Counties

For more information please contact:

Group Resources Department
TANGENT COMPUTER SERVICES LTD,
102/106 South Street
Romford
Essex RM1 1RX
Tel: Romford (0708) 750201
(24-hour answering service)

(2083)

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300 PLUS VACANCIES

★ **MVS CONSULTANT** to £15,000 + Bonus + Car
Pre and Post Sales product support role. Around two to three years' MVS experience with either CICS or IMS exposure. UK based with some overseas travel.

★ **DPM** City to £12,000
Young analyst/programmer with circa three years' RPG II on System 34 to head small department. Financial systems background preferred.

★ **ANALYST/PROGRAMMERS** to £14,000 + mortgage
International banking environment. Solid RPG skills essential. Overseas travel opportunities.

★ **PL/1 PROGRAMMERS** to £11,500 + mortgage
Financial institution needs several PL/1 professionals with two and four years' experience. CICS and database exposure desirable for the senior level. Strong emphasis on career progression and training. Lots of new development projects in the pipeline.

★ **MVS/OS/DOS COBOL** £7,500 to £11,500 + Benefits
Several clients have urgent requirements for programmers with 18 months + COBOL either batch or online. Manufacturing, financial and systems house environments.

★ **SYSTEMS ANALYST** to £12,000
Around three years' analysis and design experience in a mainframe environment. Hardware background not critical.

★ **JUNIOR ANALYST** CENTRAL LONDON £8,000 +
Systems House require 18 months + analysis experience. Programming background useful but not essential.

★ **DOS SYSTEMS PROGRAMMERS** to £13,000 + Mortgage
Around two years' DOS experience with good ASSEMBLER skills. Progressive site with advanced facilities and excellent working conditions.

★ **DATABASE ANALYST** to £12,000 + Mortgage
To develop a key role in database administration. Strong DL/1 background + Insurance or Banking experience essential.

To find out about these and all other 1983 vacancies call Ian Stubbs on 01-353 5606 (24 hours).

(2065)

EXECUTIVE FACILITIES LONDON LTD 01-404 4055

SALES EXECUTIVE

MOTOR TRADE SYSTEMS

Kerridge Computer Company, market leaders in Motor Dealer systems, require a Sales Executive to market turnkey systems to all aspects of the motor trade. The successful applicant will probably have extensive experience of the motor trade, as well as computer sales, and must be conscientious and technically competent. Base will be Newbury, Berkshire, but this position involves a good deal of travelling across the UK and occasionally overseas.

An attractive 5-figure salary is offered with bonus, company car, non-contributory pension, BUPA and permanent health insurance. Career prospects are excellent for the right person.

Please send brief c.v. or telephone Reg Mills, Kerridge Computer Company, Northcroft Lane, Newbury, Berkshire RG13 1HT. Telephone: 0635 35678.

KERRIDGE
Computer Company Ltd

(2046)

SAUDI ARABIA

Tax free salaries with additional financial advantages.

Systems/Programme Analyst

Riyadh c.£16,750

Programme Analyst

Taif c.£16,000

Computer Operator

Riyadh c.£12,250

For these positions you should be educated to 'A' level standard and experienced on HP 3000 series, VIEW, IMAGE and QUERY. An accounting/finance background is desirable.

These are 2 year contracts tax free to British passport holders. Fringe benefits package includes contract completion bonus. For further information write with full C.V. quoting Ref. TR1/CW to

David Williams, Manager,
Professional and Technical Employment,
NME Services Ltd.,
3 Albemarle Street,
London W.1.

Senior Computer Operator

As a result of internal promotion we now wish to appoint a senior operator within our expanding computer services division. Plans for 1983 include a move to a purpose built computer complex which is currently under construction.

Based at Leicester, the installation comprises an IBM 3081 and 3031 AP under MVS JES3 supporting advanced peripherals including three IBM laser printers and a large local/remote network. An IBM 3083 is on order for 1983.

Ideally, applicants for this vacancy will have a minimum of 2 years experience in a large IBM mainframe environment and will possess at least 1 years experience of MVS. A sound technical background and a good knowledge of JCL and utilities are essential requirements for this position. A rotating shift system is in operation. Therefore applicants must have their own transport.

We are a large and successful retailing group and offer excellent conditions of service plus a secure working environment. For applicants of the right calibre and experience we can offer a starting salary of up to £8,500 per annum (including shift allowance) with promotion prospects for those with ability to earn up to £12,500.

The excellent fringe benefits package includes relocation assistance where applicable and company pension scheme, plus regular salary and merit reviews.

Interested? Write or telephone for an application form, quoting Ref: HO112, to the Personnel Department.

BRITISH SHOE CORPORATION
Sunningdale Road, Leicester, LE3 1UR
Telephone Leicester (0533) 877051

LONDON BOROUGH OF HAVERING
Housing Department

SENIOR ASSISTANT

(Housing Program Development)

GRADE 501/2. Salary £9,255-£10,668 inclusive

This is a key post in a progressive London Borough Housing Department with a considerable commitment to the use of High Technology in the Housing Service.

The Department has a network of computer equipment based on a central DEC PDP 11/44 programmed in Basic + and peripheral Olivetti TC 800s programmed in assembler. Most aspects of Housing Management for the Council's 18,000 dwellings are computerised and the successful candidate will be expected to head a section dealing with the maintenance of existing software and new software developments in Housing and associated fields.

Ideally the successful candidate will have at least two years' experience of Basic + running on a DEC series 11 mini under RSTS/E together with an appreciation of the DEC and Olivetti hardware and on-line real time communications. Candidates should be able to work under pressure and have had some experience in business systems, database systems and/or property management systems. Suitable training will be given if necessary.

Application forms and job description available from the Housing Manager, Housing Department, Mercury House, Romford RM1 3DT. Tel: Romford 66999, ext 428. Closing date 21st January, 1983.

(2071)

PROPERTY RECORDS ANALYST

CIRCA £9,000 A.A.E.

CITY PROPERTY GROUP

A large and expanding property investment and development group is seeking to fill a newly created post in its property records management. The ideal applicant will have had several years experience of maintaining property records with an estate agent or property owning organisation.

He/She will be familiar with analysis of leases for rent collection and service charge purposes and may have some legal training.

A knowledge of computer based records would be useful but not essential. The successful applicant will report to the chief accountant while the existing records are being computerised and subsequently to the property controller.

Benefits include: – Life insurance, Non-Contributory Pension Scheme, BUPA, Four weeks holiday and modern office accommodation.

Write in strictest confidence enclosing detailed C.V. to:–
Administration Manager
St Martin's Property Corporation Ltd
Adelaide House, London Bridge, EC4R 9DT

(2066)

ANALYST/PROGRAMMERS

LONDON IBM COBOL to £12,000

Our client, an international company with offices throughout Europe and the States are currently expanding and seek to recruit analyst programmers. They retain IBM 4341 machines using COBOL, CICS and DL/1. Applicants should have a minimum of two years' IBM COBOL preferably with some exposure to CICS and DL/1 but TRAINING will be given. Successful candidates will be working in small project teams working on a variety of applications and be involved in development of new Real Time Systems. Make a career move to this young progressive company. Phone now for further details.
S.6849

PROGRAMMERS

W. LONDON ICL COBOL to £9,000

We have currently been retained by this well-known company with offices in West London to recruit programmers. They are currently expanding and need to supplement their large development group. They retain large ICL mainframes using COBOL, with TP and Database. Applicants require a minimum of 12 months' ICL COBOL. Excellent TRAINING courses are run by the company and initial training will be given in TP and Database. These positions offer excellent scope for advancement with prospects of getting involved with analysis.
S.8901

ANALYSTS & PROGRAMMERS

LONDON/H. COUNTIES HEWLETT PACKARD to £12,000

We have been engaged by several companies in both London and the Home Counties to recruit people with varying degrees of expertise on Hewlett Packard equipment. Positions range from Analysts through to Programmers. Two years' experience of COBOL, MPE, IMAGE, QUERY and preferably VIEW are the minimum requirements. Substantial salaries and benefit packages are available with these vacancies. Berkshire, Hampshire, the City and the West End are covered by these jobs and the businesses include Insurance, the petrochemical industry, medical and manufacturing organisations.
J.GEN

PROGRAMMERS

LONDON IBM COBOL to £11,000

This is definitely not an ordinary run-of-the-mill position, working for a prestigious firm of accountants. Our clients, based in the City wish to recruit programmers with a minimum of 18 months' Cobol, preferably in their mid-20s. You will be providing technical back-up and advising clients both in the U.K. and Europe on the implementation of new systems. This is a consultancy type role where personality and communication skills are important. The position offers a wide variety of work, working with IBM, Minis and Micros. Much training is offered along with international travel.
S.6926

ANALYST/PROGRAMMER

MIDDX./SURREY COBOL £10,000+CAR

A distribution company situated in a pleasant rural area, on the Middlesex/Surrey borders are currently seeking an experienced Analyst/Programmer. Ideal applicants should be aged between 25 and 35 and show proficiency in two languages such as COBOL, RPG or ASSEMBLER. This company retains a UNIVAC machine and a knowledge of OS/3 is a necessity. Candidates will have strong personalities and should be able to take a project from conception to implementation. Benefits include a company car, excellent salary, BUPA, insurance scheme and three weeks' holiday.
J.8899

PROGRAMMER/ANALYST

LONDON PDP/VAX £NEGOTIABLE

We are currently recruiting Programmer/Analysts with PDP or VAX experience for two companies both located in Central London. Ideal applicants will have a mature outlook and be fully conversant in BASIC + or COBOL. Candidates will be expected to have a thorough knowledge of RSTS/E or VMS. Salaries are totally negotiable according to experience and benefits will include flexitime, four weeks' holiday, L.V's and pension scheme. Both companies will require successful applicants to become involved in various aspects of user contact and be capable of working with a minimum of supervision.
J.6895

PROGRAMMERS

LONDON IBM PL/1 to £11,500

Excellent opportunities exist within this prestigious international company for PL/1 programmers with a minimum of eighteen months' experience. Ideally, candidates will have had exposure to CICS and IMS, although TRAINING is offered where necessary. All requirements are within a large development group, working on a variety of applications. Applicants should have a good educational background and have good communication skills, to be able to liase at all levels with users. Company offers excellent benefits which include relocation if required. Promotion prospects are envisaged to Project Leader level.
S.6903

PROGRAMMER/ANALYST

LONDON RPG 2 £10,000

An international manufacturing organisation wish to recruit an experienced Programmer/Analyst. This impressive company have recently moved to new offices in the WEST END. They currently retain IBM System 34 hardware and are using MAAPICS. Candidates should display a minimum of two years' RPG 2 experience and a good working knowledge of System 34 equipment. Duties will include assisting the Data Processing Manager in the development of major projects. This position provides an excellent opportunity to advance and broaden analytical skills. Salary is negotiable according to experience.
J.6763

CONTRACTS

We have urgent requirements for experienced or first-time contractors with the following skills:

IBM COBOL OS/MVS	Senior Programmers and Designers
IBM System 38 RPG III	Analyst Programmers
IBM CICS, DL/1, COBOL or PL/1	Programmers and Analyst/Programmers
DEC VAX COBOL	Programmers
IBM COBOL CICS	Analyst/Programmers
DEC PDP II BASIC + and MACRO II	Programmers
HONEYWELL L66 DM4	Programmers

If you require further information, or would like to discuss contract opportunities generally, please send your c.v. or telephone Richard Netts on 01-439 1856.

APPOINTMENTS

Datascene is a well-established Computer Services Company serving clients in the U.K., Europe and the Middle East. We have ambitious plans for the future and wish to find suitable people who have a commitment to further their own careers as well as assist in our expansion. Future prospects are excellent for those wishing to progress into management.

RECRUITMENT CONSULTANTS £15,000+

These positions involve the placement of experienced computer staff on a permanent basis.

We are looking for self-motivated individuals who are capable of showing a professional business attitude coupled with the drive to succeed in a sales environment. Recruitment or Sales experience is ideal but training will be given where necessary.

We offer a good basic salary + commission (guaranteed for the first three months), Private Patients Plan and usual holiday arrangements.

CONTRACT SALES CONSULTANTS £20,000-£30,000

The contract division handles assignments for contract personnel and involves obtaining requirements from clients, matching these against contractors who are looking for work and negotiating rates on both sides.

You must be quick thinking and aware of all matters in progress. Experience in selling and computing is essential.

The rewards are high, with a negotiable guarantee provided for six months. We will provide you with a company car and private medical insurance.

If you are interested in these positions, then call **Mike Dauncey on 01-439 1856.** All enquiries will be treated in the strictest confidence.

(2056)

datascene

Datascene International Limited
Sceptre House 169-173 Regent Street London W1R 7FB
Telephone: 01-439 7871 Telex: 25851

London & Brussels

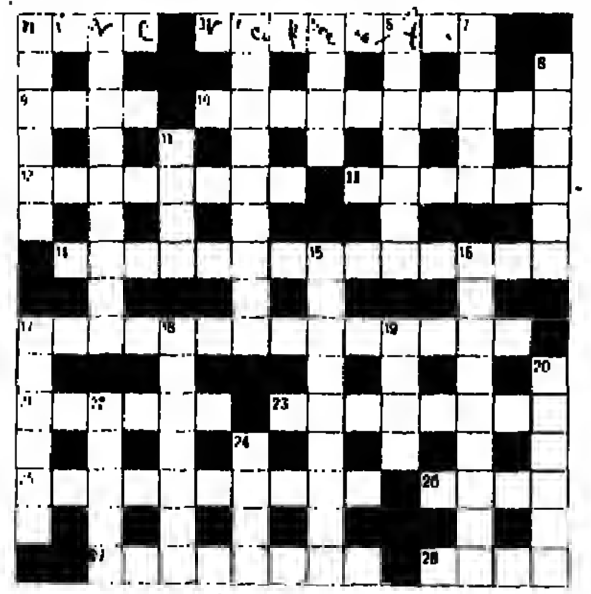
Computing Services Association

CROSSWORD

Prize Crossword No 35

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS, by first post Friday, January 14. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name.............Mitt.............(Miss, Mrs, Ms, Mr)

Address...

....

Telephone..

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed .... Date ....

ACROSS

1. Bird beginning to caw with loud noise (4)
3. One who lassoes a mischievous child? That's unseemly (8)
9. Noisy second to last game (4)
10. Fool one with attitude, offering help (10)
12. One embraced by mature editor is fawned on (8)
13. A sudden accumulation of gifts, maybe, for the demonstrator (6)
14. A very pleasing thing, getting a little of everything correct (1, 3, 2, 3, 5)
17. Deb, loser in race, going wild — one verging on insanity? (10, 4)
21. Engineers carrying a large volume back a long way off (6)
23. Fifty, having entered to contend for a prize, finished (8)
25. Trifle, crushed fruit and a slice of toast? (4, 6)
26. Secret scheme quietly attracting a great many (4)
27. Reserved group has a role to play (3, 5)
28. Old city with a lake and mountain range (4)

DOWN

1. Stock of wine supplied by 'aunt of vice kept in vehicle (6)
2. One, perhaps, is strange and more unfeeling (3, 6)
4. Let us form all over the place, being imperious (9)
5. An air attack provides the king with help (4)
6. A vessel, one that plunges forward (7)
7. Begin again, climbing in the snow energetically (5)
8. Rat-catcher about to turn up — there's worry about it (6)
11. Five hundred behind — it's crazy (4)
15. Laird, for instance, to admit being caught by a heavy blow (4-5)
16. Bible-reader with energy to exhaust the Queen (9)
17. Arbitrator in wager gets robbed (6)
18. Take out additional craft, with air force not available (7)
19. See the head act the goat endlessly (4)
20, 24. First course? One pulls it out (6, 4)
22. Space taken up on southern open tracts (5)
24. See 20.

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of IPC Business Press Ltd, any printers employed by them or the near relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

BOX NUMBERS

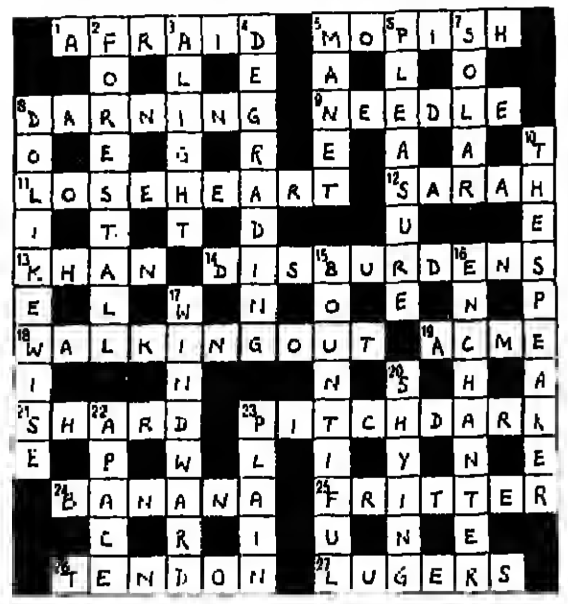
Box number replies should be addressed to:

Box Number..............................

c/o Computer Weekly
Quadrant House, The Quadrant
Sutton, Surrey SM2 5AS

Solution to Prize Crossword No. 34

ROBIN Pearce, a systems analyst with House of Fraser in Swindon, is our £10 winner this month. A £5 prize goes to Ralph Sanders, computer manager with Torry Research Station in Aberdeen, and to Richard Carlin, a technical consultant with Honeywell in Hemel Hempstead.



HIRETECH

COMPUTER MANAGER

Graduate/HND with two-three years' experience within the computer industry together with a knowledge of programming is required to take control of our existing microsystems.

Responsibilities will include the R&D of various in-house microsystems, staff training and general management of the Company's computer systems.

An interesting opportunity and a chance to use a series of unique programs for a tool hire and manufacturing concern.

Please apply in writing with c.v. to:
Mr T. G. Newmen
HIRE TECHNICIANS GROUP LTD.
317-319 High Street, Watford, Herts WD1 2JD
(2067)

MARK III SPECIALISTS & PASCAL PROGRAMMERS

required in BRISTOL & LONDON

Due to our continued growth and expansion in the exciting world of Local Processors linked to the MARK III timesharing network, we urgently need people who have the attitude and aptitude to grow with us. Current application areas include Banking, Accounting and Communications. An excellent benefit package will provide Motor Car, BUPA, Pension, etc., together with a genuine long-term career path.

TDI have been successfully providing Banking and Commercial software since 1970 in North America, Europe, Asia, Australia. Since 1980 we have become increasingly involved in the exciting development of Micro/Personal Computer based systems. In 1982 TDI became the U.K. distributor for the UCSD P-System and the SAGE range of personal computers.

TDI

Please call Mike Harman on 01-584 1621 or Roger Howarth on 0272 742796 for further details or send your C.V. to Roger Howarth, TDI Limited, 29 Alma Vale Road, Clifton, Bristol BS8 2HL.
(2044)

DEPARTMENT OF COMPUTING SERVICES

APPLICATIONS PROGRAMMER

(CLIFTON SITE)

£5352-£8325

The successful applicant will join the Applications team of six which is involved in writing, maintaining, installing and advising on applications programs. The post provides a focus for the team's responsibilities at the Clifton site and is involved with the daily running of the facilities at the Clifton site. The post combines approximately three days a week at the Clifton site with the remainder at the City Centre. The main languages in use are Fortran, Basic, Cobol and proficiency in using packages such as Ghost, NAG, Calcomp, Gino, SPSS, Part and Database Systems would be desirable. The range of work covers most subject areas taught at the Polytechnic (Business, Humanities, Science, Engineering).

The ability to communicate effectively with both the inexperienced and experienced user is paramount as the Department provides a consultancy service to students and staff throughout the Polytechnic.

Further details and form of application from the Staff Officer, Trent Polytechnic, Burton Street, Nottingham NG1 4BU. Closing date 30 December, 1982.
(1989)

TRENT POLYTECHNIC NOTTINGHAM

Industrial Artists

Our clients are market leaders in new developments and technologies. Their major project areas presently include:

- Local and Wide Area Networks
- Database Management Systems
- Electronic Office Systems
- Compilers and Linkers
- Data and Voice Communications
- Data Dictionaries
- Operating Systems, especially UNIX
- Software Tools

Due to their continued expansion, opportunities currently exist at all levels. Salaries and benefits are excellent. Equally important are the possibilities of becoming realistically involved with the very latest developments in the Computer Industry.

IA is an International Consultancy, established in 1968, providing services to clients in the UK, Europe, and America. Currently, we are retained to assist with the above staffing programmes. Our most urgent requirements are for:

- Project Leaders
- Design/Development Engineers
- Systems Analysts/Programmers
- Software Engineers
- Systems Programmers
- Customer Service Engineers

You must be DP professional, imaginative and innovative — looking for a chance to try new ideas — supported by an already proven background. So, a minimum of 2 years experience in one of the above project areas is mandatory and, if also qualified to Degree level this would be an advantage.

Call us today, or write, so that we can help you make the right move!

Marketing & Recruitment Division
Industrial Artists Limited
21 Bancroft, Hitchin, Hertfordshire SG5 1JP
Telephone (0462) 57141

IA is a registered employment business licenced by D of E.

ISYS INTERACTIVE SYSTEMS LTD
require
PL/1 PROGRAMMERS
to work on a variety of commercial applications under CP/M (operating system).
Salary negotiable
Telephone in first instance
Derby (0332) 380311
(2062)

SOCIETE GENERALE

We are a major International Bank in the city and require a

COMPUTER OPERATOR

for our Multi-Programming On-Line Installation currently using Data General Eclipse C330 and M600 System under AOS. Due to expansion we will be shortly developing on an IBM 4331 using DOS/VSE and CICS.

Applicants should have at least one year's operating experience preferably using DOS/VSE and CICS.

To the chosen applicant we will offer a competitive salary together with an exceptional fringe benefit package.

Please write giving a brief cv to:
Staff Department
Societe Generale
105-108 Old Broad Street, London EC2P 2HR (2061)

PROGRAMMERS

Jeddah, Saudi Arabia

Marine Transport International is in the process of developing computerised container control systems for the Port of Jeddah in Saudi Arabia.

The current network includes twin PDP 11/70 computers and eight T.I. Computers, a number of which are controlling automatic container handling equipment.

There is an immediate requirement for a number of experienced MUMPS or DSM Programmers for both new and maintenance projects.

Salary will be in the range of £16,000 to £20,000 p.a. for a two year contract. The salaries are tax free and the package includes the normal benefits associated with employment in this region. Married or bachelor status and grade of positions are variable.

Please contact the following for an application form:

Miss Frances Gadson, London Manager,
MARINE TRANSPORT INTERNATIONAL CO LTD. 1 Lowther Gardens, Prince Consort Road, London SW7 2AA.
Telephone: 01-584 0465 Telex: 8814705 MTILON G

الشركة الدولية للنقل البحري المحدودة
marine transport international co. ltd.
(2063)

UNIVERSITY COLLEGE LONDON
Department of Physics and Astronomy

Junior Programmer

required to join the software team assisting research in experimental elementary particle physics. We are looking for enthusiasm, conscientiousness and initiative. In return we can offer a cross section of computing experience from micros to mainframes and an opportunity to work with a variety of sophisticated peripheral hardware.
Minimum qualification: 'A' level Mathematics and some programming training. A degree in a scientific or technical subject would be an advantage.
Holiday: Four weeks plus one week at Easter and Christmas. Salary scale £4,846 × 6 increments to £5,863 plus £1,035 LA or £5,863 × 5 increments to £6,857 plus £1,035 LA.
Application form and further details may be obtained from the Personnel Officer (Technical Staff C/G1), University College London, Gower Street, London WC1E 6BT.
(2090)

FOR ADVERTISING RATES AND DETAILS, PLEASE PHONE 01-661 6671

2 PROFESSIONAL SALESPERSONS

Computer Software — To £20k

One based in the South of England and one in the North

An opportunity has arisen for self-motivated sales professionals to join one of the country's leading software houses specialising in the Legal Profession.

The successful candidates will be aged under 45 and possess the motivation, experience and enthusiasm necessary to operate on their own initiative and successfully implement our sales plans in these areas. Familiarity with computers and their applications is essential as is the ability to negotiate with members of the legal profession. Total rewards, including commissions, are as indicated together with car and pension scheme.

Call Mr Fletcher
0532 461841
(2078)

HUDDERSFIELD POLYTECHNIC
Department of Computer Studies and Mathematics

SENIOR LECTURER/LECTURER II

Ref: ACA/478

Computing/Information Systems

Fixed Term Contract for TWO years.
The principal degree and diploma courses within the Department involve major studies of applications of computers in business, industry and public authorities.
Applicants should have appropriate practical experience of computer-based information systems in areas such as applications/systems programming and systems design/analysis. A good Honours Degree and/or MBCS is essential.
Staff are expected to undertake activities, including research, in addition to teaching duties.
Salary: SL £10,173-£11,964 (Bar) £12,816
Salary: L II £8,855-£11,022

Further details and application forms are available from the Personnel Office, The Polytechnic, Queensgate, Huddersfield HD1 3DH. Tel: 0484 22288, ext. 2224, and should be returned no later than Thursday, 20 January, 1983.
(2070)

BRITANNIA REFINED METALS LTD.

SYSTEMS ANALYST

Britannia Refined Metals with turnover of £150,000,000 is the autonomous U.K. refining operation of an international mining business.

Its two refineries operate on a seven-day continuous shift system, and over 450 people are employed.

A Systems Analyst will report to the Head of Computer Services. He or she will be responsible for planning and co-ordinating Systems Development projects for B.R.M. group companies and will co-ordinate and control programming support for applications and operations software.

Candidates should be educated to degree level and have over five years' computer programming and systems development experience in a commercial environment.

The employment package includes a five-figure salary and other benefits including pension, life assurance and sickness schemes.

Please write giving full details to:

Robin Burnett, Britannia Refined Metals Ltd., Botany Road, Northfleet, Gravesend, Kent DA11 [illegible]
(2061)

INTERNATIONAL BROKERAGE AND LEASING

ibl

To facilitate continued expansion, four extra telephone salespeople are required for the City and Ascot offices of this major European computer leasing company. Salary will be commensurate with experience and potential. Successful performance can lead to exclusive sales territory, company car and five-figure commission.

Knowledge of the leasing market would be useful; knowledge of IBM computer equipment is almost essential.
Applicants must be prepared to work hard in a competitive business which rewards effort and application.
Please apply initially to Beverley Edgar: Ascot (0990) 23344.

IBL (UK) LTD, INDEX HOUSE, HIGH STREET, ASCOT, BERKSHIRE SL5 7JF. TEL: 0990 23344. TLX: 847765

Part of the IBL Group. Other companies in Australia, Belgium, France, Germany, The Netherlands, Portugal and USA
(2048)

de Zoete & Bevan

wishes to recruit an

EXPERIENCED PROGRAMMER

to assist in developing further applications for its research orientated computers. The firm has two Hewlett Packard 3000s using SPL, BASIC, FORTRAN and PASCAL and a DEC PDP 11/23 used for its TOPIC communications service.

The position requires at least two years' commercial programming experience and a current knowledge of Stock Exchange investments. Initially the successful applicant is likely to be involved in developing our equity research facilities.

Applicants are likely to be under 35 years old and the rewards will be attractive to the successful applicant.

Please write, giving brief details of education and career to date, to:

P. F. J. Rendell
de Zoete & Bevan
25 Finsbury Circus
London EC2M 7EE
(2059)

SALES

ComputerWeekly

Expansion of the leading journal in a rapidly growing publishing market has created three sales positions on one of Britain's biggest trade newspapers.
Computer Weekly has a circulation of 100,000 and is one of the largest titles within IPC Business Press. It runs the country's biggest computer exhibition plus five other related shows, and has recently launched two associated journals.

It is the flagship of the country's largest and fastest growing group of computer journals, and is based at modern offices in Sutton, Surrey.

- Senior Display Sales Executives
  These two jobs mean selling display advertising in a major territory containing top-name companies and taking sales responsibility for specific projects within the Computer Weekly team.
  The successful candidates will have a substantial revenue responsibility and should be able to demonstrate the sales experience and drive necessary for it.
- Exhibition Sales Executive
  One job to work with the Exhibition Sales Manager selling stands for the annual Compec exhibition at Olympia and its four regional locations plus another specialised event.
  These shows are the country's premier market place for the professional computer user, and are challenging targets for the sales person who likes variety and can sell to companies big and small.
  Previous exhibition sales experience is desirable but the right candidate could come from any sales background.

A five-figure earnings package plus car are available to the right people for these three positions. Opportunities for career advancement are excellent.
Write in confidence with full personal, employment and salary history to: Harry Hutson, Display Advertisement Manager, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS.

These positions are open to both men and women

IPC BUSINESS PRESS
THE LARGEST COMPLEX OF BUSINESS AND SPECIALIST PUBLICATIONS IN THE WORLD

SALES BIT

Quality of Management — 36

An unexpected questionnaire can be a real eye-opener

HAVING written about sales meetings for the past five weeks, particularly in the context of keeping them entertaining and motivating, I feel I could continue for many weeks with more ideas in a similar vein. From the reader's point of view, it may already appear that I have! Well, just be patient — only two more weeks to go.

It is amazing how many salespeople pursue their occupation with less than adequate product knowledge. In a high technology industry like computers, it is easy to fall into the snare of complacency that comes from exploiting the gap between superficial knowledge and total ignorance.

This is particularly true of those selling to first-time users. It is bad news for any sales manager to have members of the team who, through lack of product understanding, are likely to affect the company's professional credibility by being "caught with their trousers down".

A good way of significantly offsetting this problem while at the same time providing an interesting feature within the sales meeting, is to distribute without warning a questionnaire related to a particular product or feature which contains all the vital elements of product knowledge necessary for effective selling.

Alternatively, the questions can be presented verbally, in the form of a quiz. Whichever the approach, the answers must be brief and uncontradictable. Then, mark the papers, either yourself or by swapping among the participants, and declare a winner.

Don't give a prize, for to do so would suggest that to know all about the product one is selling is an exceptional achievement, rather than the obligation of all salespeople.

The only point of declaring a winner is to highlight the inadequacies of those who score less.

The real benefits of this type of event, like so many I have mentioned, is the discussion that can be generated afterwards. In the case of the questionnaire session, much interest and educational progress can be gained by concentrating on the answers that most salespeople get wrong.

Providing you make your selection carefully, the appearance of a customer as a guest speaker can be quite an eye-opener for salespeople. Choose someone who is confident, articulate and middle-of-the-road — not an aggressive cynic or an Uncle Tom. Then get him to speak, not about his company, or his industry, or your product or industry, but about salespeople.

Get him to talk about his reaction to them, the kind of things they do that upset him, amusing situations created by inept salespeople, what he expects from those who will sell to him — his complete attitude toward the selling profession.

Both you and your sales team could be in for a few shocks.

Given the right speaker, such a talk could be just the eye-opener needed to remove the arrogant insularity that handicaps many salespeople. To learn from the horse's mouth that the intolerant buyer is often a mirror held up to the salesman's face, can be a lesson to last a lifetime.

However, I cannot emphasise enough the importance of selecting someone who is a competent speaker and who is basically friendly towards the company and above all, an individual with a real sense of humour.

There is nothing worse than a humourless person talking in a critical manner about a basically negative topic.

After the event, be sure to have a social gathering, a few refreshments, whatever, so that a real air of friendly informality can be developed and any feeling of unfair criticism dispelled by good humoured conversation.

More next week!

Alan Williams

COURSES

■ INCLUDED in the **Computer Training and Education Centre's** line-up of courses for the New Year is an introduction to computers, to be held on January 31 and March 28. There are also two CP/M courses available — CP/M User Level, on January 20-21 and February 17-18; and Advanced CP/M from March 7-8 and May 5-6. For those interested in Basic, Basic Programming will be held from January 24-28 and repeated in December; and Advanced Basic courses will take place from January 10-12 and March 14-16. Details on 01-251 4010.

■ PRACTICAL Computing for the 1980s is a course providing a survey of hardware and software currently on the market. Organised by SPL, it will be held in London on February 24-25. The course is aimed at computer users and managers wishing to keep up with the trends in computing. No technical knowledge of programming is required, although a familiarity with some computing would be useful. Microcomputers, graphics, databases and peripherals will all be covered. Details on 01-836 2208.

PUZZLE ANSWER

A	B	C	D
40	40	–	–
35	40	5	–
35	40	1	4
39	40	1	–
39	40	–	1
34	40	5	1
34	40	2	4
38	40	2	–
38	36	2	4
40	36	2	2